



Bid Number: 05-X-36589

REQUEST FOR PROPOSAL FOR:

**BITUMINOUS CONCRETE - WINTER MIX
PICK-UP OR DELIVERED**

Date Issued: July 1, 1004

Purchasing Agency
State of New Jersey
Department of the Treasury
Division of Purchase and Property
Purchase Bureau, PO Box 230
33 West State Street
Trenton, New Jersey 08625-0230

Using Agency
Department of Transportation

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1.0 INFORMATION FOR BIDDERS

1.1 PURPOSE AND INTENT

This Request for Proposal (RFP) is issued by the Purchase Bureau, Division of Purchase and Property, Department of the Treasury on behalf of the State's Using Agencies. The purpose of this RFP is to solicit bid proposals to obtain timely quantities of bituminous concrete stockpile patch mixture. This contract is structured to establish prices for material which is delivered to any location within each county or picked up, F.O.B. plant by all agencies.

The intent of this RFP is to award contracts to those responsible bidders whose bid proposals, conforming to this RFP are most advantageous to the State, price and other factors considered.

1.1.1 SPECIAL PICK-UP

The department of transportation may pick up at the location closest to a job site when in the best interest to the State of New Jersey.

The Standard Terms & Conditions, [Appendix 1](#) of this RFP, will apply to all contracts or purchase agreements made with the State of New Jersey. These terms are in addition to the terms and conditions set forth in this RFP and should be read in conjunction with same unless the RFP specifically indicates otherwise.

1.2 BACKGROUND

This is a repurchase of the **Bituminous Concrete Winter Mix**, term contract, presently due to expire on **June 30, 2004**. Vendors who are interested in the current contract specifications and pricing information are encouraged to visit the Purchase Bureau's website on the world wide web. The applicable "T" reference number for this lookup is **T-0158**. The exact WWW address is <http://www.state.nj.us/treasury/purchase/contracts.htm>

1.3 KEY EVENTS

1.3.1 QUESTIONS AND INQUIRIES

It is the policy of the Purchase Bureau to accept questions and inquiries from all vendors. Written questions should be mailed, e-mailed or faxed to the Purchase Bureau to the attention of the assigned Purchase Bureau buyer at the following address:

Attn: **JACKIE KEMERY**
State of New Jersey
Division of Purchase and Property
Purchase Bureau
PO Box 230
Trenton, New Jersey 08625-0230

E- Mail: <mailto:jacqueline.kemery@treas.state.nj.us>
Phone Number: **(609) 292-4189**
Fax Number: **(609) 292-0490**

After the submission of bid proposals, unless requested by the State, contact with the State is limited to status inquiries only and such inquiries are only to be directed to the buyer. Any further contact or information about the proposal to the buyer or any other State official connected with the solicitation will be considered an impermissible supplementation of the bidder's bid proposal.

1.3.1.1 QUESTION PROTOCOL

Questions should be submitted in writing to the attention of the assigned Purchase Bureau buyer. Written questions should be directly tied to the RFP by the writer. Questions should be asked in consecutive order, from beginning to end, following the organization of the RFP. Each question should begin by referencing the RFP page number and section number to which it relates.

Short procedural inquiries may be accepted by telephone by the Purchase Bureau buyer, however, oral explanations or instructions given over the telephone shall not be binding on the State. Vendors shall not contact the Using Agency directly, in person, or by telephone, or by email concerning this RFP.

1.3.1.2 CUT-OFF DATE FOR QUESTIONS AND INQUIRIES

The cut-off date for questions and inquiries relating to this RFP is the date of the bid opening. Addendum, if any, to this RFP will be distributed to all vendors sent this RFP.

1.4 ADDITIONAL INFORMATION

1.4.1 REVISIONS TO THIS RFP

In the event that it becomes necessary to clarify or revise this RFP, such clarification or revision will be by addendum.

ALL RFP ADDENDA WILL BE ISSUED ON THE PURCHASE BUREAU WEB SITE. TO ACCESS ADDENDA THE BIDDER MUST SELECT THE BID NUMBER ON THE PURCHASE BUREAU BIDDING OPPORTUNITIES WEB PAGE AT THE FOLLOWING ADDRESS:

[HTTP://WWW.STATE.NJ.US/TREASURY/PURCHASE/BID/SUMMARY/BID.SHTML](http://www.state.nj.us/treasury/purchase/bid/summary/bid.shtml)

There are no designated dates for release of addenda. Therefore interested bidders should check the Purchase Bureau "Bidding Opportunities" website on a daily basis from time of RFP issuance through bid opening.

It is the sole responsibility of the bidder to be knowledgeable of all addenda related to this procurement.

1.4.2 ADDENDUM AS A PART OF THIS RFP

Any addendum to this RFP shall become part of this RFP and part of any contract awarded as a result of this RFP.

1.4.3 ISSUING OFFICE

This RFP is issued by the Purchase Bureau, Division of Purchase and Property. The buyer noted in Section 1.3.1 is the sole point of contact between the vendor and the State for purposes of this RFP.

1.4.4 BIDDER RESPONSIBILITY

The bidder assumes sole responsibility for the complete effort required in submitting a bid proposal in response to this RFP. No special consideration will be given after bid proposals are opened because of a bidder's failure to be knowledgeable as to all of the requirements of this RFP. By submitting a bid proposal in response to this RFP, the bidder represents that it has satisfied itself, from its own investigation, as to all of the requirements of this RFP.

1.4.5 COST LIABILITY

The State assumes no responsibility and bears no liability for costs incurred by a bidder in the preparation and submittal of a bid proposal in response to this RFP.

1.4.6 CONTENTS OF BID PROPOSAL

The entire content of every bid proposal will be publicly opened and will become a matter of public record. This is the case notwithstanding any statement to the contrary made by a bidder in its bid proposal. All bid proposals, as public records, are available for public inspection. Interested parties can make an appointment to inspect bid proposals received in response to this RFP by contacting the Purchase Bureau buyer.

1.4.7 PRICE ALTERATION

Bid prices must be typed or written in ink. Any price change (including "white-outs") must be initialed. Failure to initial price changes shall preclude a contract award being made to the bidder.

1.4.8 JOINT VENTURE

If a joint venture is submitting a bid proposal, the agreement between the parties relating to such joint venture should be submitted with the joint venture's bid proposal. Authorized signatories from each party comprising the joint venture must sign the bid proposal. A separate Ownership Disclosure Form, Affirmative Action Employee Information Report, MacBride Principles Certification and business registration must be supplied by each party to the joint venture.

2.0 DEFINITIONS

2.1 GENERAL DEFINITIONS

The following definitions shall be part of any contract awarded or order placed as result of this RFP.

Addendum - Written clarification or revision to this RFP issued by the Purchase Bureau.

Amendment - A change in the scope of work to be performed by the contractor. An amendment is not effective until signed by the Director, Division of Purchase and Property.

Bidder – A vendor submitting a bid proposal in response to this RFP.

Contract - This RFP, any addendum to this RFP, the bidder's bid proposal submitted in response to this RFP and the Division's Notice of Acceptance.

Contractor - The contractor is the bidder awarded a contract.

Director - Director, Division of Purchase and Property, Department of the Treasury. By statutory authority, the Director is the chief contracting officer for the State of New Jersey.

Division - The Division of Purchase and Property.

May - Denotes that which is permissible, but not mandatory.

Request for Proposal (RFP) - This document, which establishes the bidding and contract requirements and solicits bid proposals to meet the purchase needs of [the] Using Agency[ies], as identified herein.

Shall or Must - Denotes that which is a mandatory requirement. Failure to meet a mandatory requirement will result in the rejection of a bid proposal, as materially non-responsive.

Should - Denotes that which is recommended, but not mandatory.

State - State of New Jersey

Using Agency[ies] or Agency[ies] - The entity[ies] for which the Division has issued this RFP.

3.0 COMMODITY DESCRIPTION/SCOPE OF WORK

Note: All paragraph numbers mentioned in this section of the bid refer to specific sections of Standard New Jersey Department of Transportation specifications and reference books. Accordingly, some of the numbering may not follow strict consecutive order.

Significant changes have been made starting with section 901 of this RFP. It is strongly suggested all vendors read the RFP carefully.

101.01 GENERAL

Wherever in the specifications or other contract documents the following abbreviations and terms, or pronouns in place of them, are used, the intent and meaning, unless a different intent or meaning is clearly indicated, shall be interpreted as set forth in the following subsection.

When a publication is specified, it shall refer to the most recent date of issue as a specific date or year is provided for.

101.02 ABBREVIATION

Wherever the following abbreviations are used, they are to be constructed the same as the respective expressions represented.

AASHTO	American Association Of State Highway And Transportation Officials
ANSI	American National Standards Institute
ASTM	American Society For Testing And Materials
CIAP	Construction Industry Advancement Of New Jersey
FHWA	Federal Highway Administration
FSS	Federal Specifications And Standards, General Services Administration
NEMA	National Electrical Manufacturer's Association
NJAC	New Jersey Administrative Code
NJDOT	New Jersey Department Of Transportation
NJSA	New Jersey Statutes Annotated
NACE	National Association Of Corrosion Engineers
OSHA	Occupational Safety And Health Administration
UL	Underwriter's Laboratories

101.03 TERMS

When the following terms are used in the contract documents, the intent and meaning shall be as follows;

CONTRACT DOCUMENTS

The term "contract documents" include: Advertisement For Proposal, Bid Proposal, Award of Contract, Executive Form Of Contract, Bid Security Bond, Performance Bond Specifications, Plans, Addenda, Standard Terms And Conditions, Affirmative Action, Affirmative Action Affidavit, Affirmative Action Employee Information Report, Stockholder Disclosure, Attachments, Price Sheet(S) and/or any other information mailed or otherwise transmitted to the prospective bidders prior to the receipt of bids. All of which are to be as one instrument whether or not set forth at length in the form of contract.

DAYS

Unless otherwise designated, days as used in the contract documents means calendar days.

DEPARTMENT

The term "**Department**" means the Department of Transportation of the State of New Jersey, as created by law.

DEPARTMENT LABORATORY

The term "**Department Laboratory**" means the main testing laboratory located at 930 Lower Ferry Road, Trenton, New Jersey 08625 or such other laboratory as the department may designate.

ENGINEER

The term "**Engineer**" means the state transportation engineer, as created by law, acting directly or through his duly authorized representatives, such representatives acting within the scope of the particular duties delegated to them.

Note: In order to avoid repetition, whenever the following words are used, it shall be understood as if they were followed by the words "To The Engineer" or "By The Engineer":

"Acceptable, Accepted, Added, Allowed, Applied, Approved, Assumed, Authorized, Awarded, Calculated, Charged, Checked, Classified, Computed, Condemned, Conducted, Considered, Considered Necessary, Contemplated, Converted, Deducted, Deemed, Deemed Necessary, Deleted, Designated, Determined, Directed Disapproved, Divided, Documented Established, Evaluated, Examined, Excluded, Furnished, Given, Granted, Included, Incorporated, Increased, Indicated, Inspected, Insufficient, Issued, Made, Marked, Measured, Modified, Monitored, Notified, Observed, Obtained, Opened, Ordered, Paid, Paid For, Performed, Permitted, Provided, Received, Recorded, Reduced, Re-Evaluated, Rejected, Removed, Required, Reserved, Re-Tested, Returned, Sampled, Satisfactory, Scheduled, Specified, Stopped, Submitted, Sufficient, Suitable, Supplied, Suspended, Taken, Tested, Unacceptable, Unsatisfactory, Unsuitable Or Used.

INSPECTOR

The engineer's authorized representative assigned to inspect contract performance, methods and materials related to the work both on and off the site of the project.

MATERIALS QUESTIONNAIRE

The specified forms on which the contractor shall notify the engineer of the sources of materials he expects to use.

PROJECT

The specific section of highway or other public improvement together with all appurtenances and construction to be performed thereon under the contract. The necessary work of providing the various materials and services in combination or individual and performing the work in order to obtain the product required under the terms of this contract. The project may include work by others under other contracts.

SPECIFICATIONS

The term "**Specifications**" means the directions, provisions and requirements giving interpretations of the work to be performed under this contract.

STATE BUSINESS DAY

A calendar day, exclusive of Saturdays, Sundays, State recognized Legal Holidays or State Office Closings as declared by the Governor.

WORKING DAY

Any calendar day, exclusive of Saturdays, Sundays and State Holidays.

101.04 INQUIRIES REGARDING PROJECT

After award of the contract, inquiries regarding the various types of work under this contract should be directed to the supervisor Of materials at the New Jersey Department of Transportation offices

SECTION 105 - CONTROL OF WORK

105.01 AUTHORITY OF THE ENGINEER.

The engineer will decide all questions which may arise as to the quality and acceptability of materials furnished.

105.05 CONFORMITY WITH CONTRACT DOCUMENTS.

All materials furnished shall be in conformity with the material requirements, including tolerances, if any, shown in the contract documents.

In the event the engineer finds the materials or the finished product in which the materials are used, or the work performed are not in conformity with the specifications, and have resulted in any inferior or unsatisfactory product, the work or materials shall be removed and replaced or otherwise corrected at no cost to the state.

105.13 DUTIES OF THE INSPECTOR.

Inspectors employed by the department will be authorized by the engineer to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, or manufacture of the materials to be used.

105.14 INSPECTION OF WORK.

All materials and each part or detail of the work shall be subject to inspection by the engineer. The engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the contractor as is required to make a complete and detailed inspection. When the engineer is in or about the premises above referred to in the course of his employment, he is deemed conclusively to be an invitee of the contractor. If the contractor is not the owner of the place where preparation or manufacture is in progress, the owner thereof shall be deemed to be the agent of the contractor with respect to the obligation assumed hereunder. The contractor or his agent shall be responsible for the payment of claims for injuries to the engineer due to negligence on the part of the said contractor or his agent.

The engineer may order any materials delivered without his supervision or inspection to be removed and replaced at the contractor's expense. Also, should the materials delivered prove unacceptable, the removal and replacement of such materials will be at the contractor's expense.

The contractor is responsible for carrying out the provisions of the contract at all times and for control of the quality of the materials regardless of whether an authorized inspector is present or not. This obligation to provide the required materials in accordance with the contract documents is not relieved by the observations of the engineer in the administration of the contract, nor by inspections, tests, or approvals by others. Materials not meeting the contract requirements shall be made good and unsuitable materials may be rejected, notwithstanding that such materials had been previously inspected and approved by the department or that payment

105.17 LOAD RESTRICTIONS.

The department will monitor the contractor's observance of legal load limits in accordance with the following:

For trucks with weigh tickets, a certified weigh ticket shall be furnished with each load.

Any truck found to be in excess of the legal load limit may have that load of material rejected and will not be accepted for delivery.

105.18 AUTOMATICALLY CONTROLLED EQUIPMENT.

Whenever equipment is required to be operated automatically under the contract and a breakdown or malfunction of the automatic controls occurs, the equipment may be operated manually or by other methods only for the remainder of the working day on which the breakdown or malfunction occurs, provided this method of operation produces results which otherwise meet the specifications.

SECTION 106 - CONTROL OF MATERIALS

106.01 SOURCE OF SUPPLY AND QUALITY REQUIREMENTS.

All materials shall be furnished by the contractor unless otherwise specifically prescribed in the contract documents. The materials shall conform to the requirements of the contract documents and shall be from approved sources. Only materials which have been approved by the engineer shall be used.

Promptly after the execution of the contract, the engineer shall be notified on materials questionnaire forms furnished by the department, of the sources of materials expected to be used during the 6 month period thereafter. Such notice shall be received by the engineer no later than 10 days prior to the shipment of materials from a previously approved source and no later than 30 days prior to the shipment of materials from a source not previously approved, except that, with the engineer's consent, shipments of materials from approved stocks may be permitted to be made 3 days after notice to the engineer.

Within 12 hours after receiving a shipment of materials, the engineer shall be notified of the quantity and location thereof.

In any item, the sources, brands or types of materials shall not be changed without the consent of the engineer. Request for such changes shall be filed with the engineer the number of days in advance of such changes as required above.

The foregoing provisions shall apply with regard to requests by subcontractors for the sources of the materials they propose to use, such requests to be submitted through the contractor.

The notice provisions of this subsection shall not be so construed as to relieve the contractor of his obligation to ensure that all materials required shall be available at the time and place as set forth in subsection 108.10 is met. If any doubt exists as to the timely availability of a material, the engineer shall be immediately informed, in writing, of the potential problem and of the action to be taken to guaranty the availability of such materials.

Stockpiles of materials whose availability is or may be problematical shall be established at an early date.

106.03 MATERIALS, INSPECTIONS, TESTS AND SAMPLES.

After notification of bid award and prior to shipment of the material, the contractor shall contact the Chief, Bureau of Materials, 930 Lower Ferry Road, Trenton, New Jersey 08625, telephone: 609-530-2308, to arrange for inspection and testing of the material. Only material which clearly exhibits the appropriate stamp or has obtained the necessary approvals of the department for approved material will be accepted upon delivery except that material which will be sampled after delivery will be accepted conditionally pending satisfactory results of the required tests.

All materials being used are subject to inspection, testing or rejection at any time. Samples will be taken by a representative of the department. Results of tests, made with the department laboratory's apparatus and conforming to the requirements specified in the prescribed methods of tests, are official. Copies of test results will be furnished upon request.

Testing will be performed in accordance with AASHTO or ASTM methods of tests or in accordance with specified departmental test methods as described in section 990.

Except as otherwise provided, all materials will be tested at the expense of the state.

The required number of samples and rate of sampling or certifications of compliance for the various materials are as specified in the respective methods of test or in the subsections applicable to that particular material or pay item.

The state reserves the right to reject any material not complying with the requirements set forth in this specification. If the material fails to comply with the requirements, it shall be removed and replaced by the contractor, at no cost to the state, with material complying with the requirements set forth herein.

106.05 PLANT INSPECTION.

The engineer may undertake the inspection of materials at the source. Manufacturing plants may be inspected periodically for compliance with specified manufacturing methods. Material samples may be obtained for laboratory testing for compliance with materials quality requirements. This may be the basis for acceptance of manufactured lots as to quality.

In the event plant inspection is undertaken the following conditions shall be met:

The engineer will have the cooperation and assistance of the contractor and the producer with whom he contracted for materials.

The engineer will have full entry at all times to such parts of the plant as may concern the manufacture or production of the materials being furnished.

If required by the engineer, the contractor shall arrange for approved office space for the use of the inspector; such space to be located conveniently in or near the plant.

Adequate safety measures shall be provided and maintained. It is understood that the department reserves the right to retest all materials which have been tested and accepted at the source of supply after the same have been delivered and to reject all materials which, when retested, do not meet the requirements of the contract documents.

SECTION 107 - LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107.10 SANITARY, HEALTH, AND SAFETY PROVISIONS.

The contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his employees and for state field offices and materials field laboratory as may be necessary to comply with the requirements of the state and local health departments, or of other bodies or tribunals having jurisdiction.

The contractor shall observe all rules and regulations of the Federal, State, and Local Health Officials. Attention is directed to Federal, State and Local Laws, Rules and Regulations concerning construction safety and health standards. The contractor shall not require any worker to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his health or safety.

The contractor shall admit, without delay and without the presentation of an inspection warrant, any inspector of the Occupational Safety and Health Administration or other legally responsible agency involved in safety and health administration upon presentation of proper credentials.

SECTION 108 - PROSECUTION AND PROGRESS

108.10 TIME OF COMPLETION.

The contract duration as specified in the proposal shall be the period that orders may be submitted for the receipt of material. The contractor will be required to provide all ordered materials after expiration of the contract provided an order for the item(s) was submitted prior to the expiration date.

Material to be obtained from the contractor F.O.B. plant will not be required to be made available commencing on the first day of the month of May following the winter the contract was in effect.

SECTION 109 - MEASUREMENT AND PAYMENT

109.01 MEASUREMENT OF QUANTITIES.

Measurements will be made in accordance with the international system of units (SI) (The Modernized Metric System).

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

All materials which are measured or proportioned by weight shall be weighed on accurate, approved scales by competent, qualified personnel at locations designated by the engineer.

Volumes of bituminous materials of the types and grades specified shall be as determined by the temperature-volume correction factors in the applicable tables of subsection 904.06.

Scales shall be accurate within one-half percent of the correct weight throughout the range of use. The contractor shall have the scales checked and must have displayed the appropriate seal issued by the office of weights and measures, division of consumer affairs, Department of Law and Public Safety. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed one-tenth of one percent of the nominal rated capacity of the scale; but no less than one pound. The use of spring balances will not be permitted.

Beams, dials, platforms and other scale equipment shall be so arranged that the operator and inspector can safely and conveniently view them.

Scale installations shall have available, ten standard 50 pound weights for testing the weighing equipment or suitable weights and devices for other approved equipment.

Scales overweighing (indicating more than true weight) will not be permitted to operate and all materials received subsequent to the last previous correct weighing accuracy test will be reduced by the percentage of error in excess of one-half of one percent.

In the event inspection reveals the scales have been underweighing, they shall be adjusted and no additional payment to the contractor will be allowed for materials previously weighed and recorded.

109.02 SCOPE OF PAYMENT.

The contractor shall receive and accept the compensation provided for in the contract as full payment for furnishing all labor, materials, tools, equipment, proper loading of trucks and for delivered material, proper unloading where directed, and incidentals necessary to provide the bituminous concrete stockpile patch material bid in the proposal; also, except where specifically provided elsewhere in the contract documents, compensation shall encompass full payment for all risk, loss, damage, or expense of whatever character arising out of the nature of producing, stockpiling, or transporting of the bituminous concrete stockpile patch or the prosecution thereof, or for any unforeseen difficulties which may be encountered during the prosecution of the required work under this contract.

SECTION 404 - HOT MIX ASPHALT (HMA)

404.01 DESCRIPTION.

This work shall consist of the proper proportioning, mixing, and loading of bituminous concrete stockpile patch mixture.

MATERIALS

404.02 MATERIALS.

Bituminous concrete stockpile patch mixture shall conform to Section 903.

EQUIPMENT

404.03 EQUIPMENT.

The plant and equipment shall consist of one or more bituminous concrete plants, small tools and all other equipment necessary for the production of the bituminous concrete stockpile patch material.

404.04 BITUMINOUS CONCRETE BATCH PLANTS.

- A. General requirements for all mixing plants. Plants used for the preparation of the bituminous concrete stockpile patch mixture may be of the fully automated batch type or drum mixing type.

All plants shall be designed, equipped, calibrated and operated to deliver well-coated, homogeneous bituminous mixture complying with the job mix formula. Any defects which adversely affect the functioning of a plant or plant unit or the quality of the mixture shall be corrected immediately. The plants shall consist of the following:

(1) Aggregate Storage. Storage space shall be provided for each size and source of aggregate. The different aggregates shall be kept separated until they have been delivered to the cold feed belt or elevator. The aggregate storage area shall be maintained and the separate materials stockpiled in accordance with subsection 901.02 except that the use of steel-tracked equipment will be permitted.

(2) Aggregate Bins. The plant shall have cold feed aggregate storage bins of sufficient number and capacity to store the amount of aggregate required to keep the plant in continuous operation. The bins shall be designed to prevent overflow of material from one bin compartment to another. There shall be at least one cold feed aggregate bin for each stockpile of material to be used. An indicator shall be provided on each bin to show the gate opening.

(3) Equipment For Preparation of Bituminous Material. Tanks for storage of bitumen shall be equipped for heating the material to a uniform temperature, under effective and positive control at all times, to the temperature requirements for the mixture. Heating shall be accomplished so that no flame comes in contact with the heating tank.

A circulating system for the bitumen shall be provided of adequate capacity to ensure continuous circulation between storage tank and proportioning units during the entire operating period. The discharge end of the bituminous circulating pipe shall be maintained below the surface of the bitumen in the storage tank to prevent discharging the hot bitumen into the open air.

All pipe lines and fittings shall be steam or oil jacketed electrically or otherwise heated and insulated to prevent heat loss.

Provisions shall be made for sampling bituminous material by means of valves complying with AASHTO T 40 except that a sampling valve shall be located in the lowest third of the storage tank.

(4) Feeder For Dryer. Separate feeders shall be provided for each size and source of aggregate. Each size shall be fed onto the belt going to the dryer by mechanical feeders with separate adjustable gates. The feeders shall be capable of delivering the separate aggregates onto the belt in proper proportions. The feeders shall provide for adjustment of total feed and proportional feed.

Means shall be provided to assure a constant and uniform flow of material from each bin.

The aggregate shall be fed into the dryer so that uniform production and uniform temperature may be obtained.

(5) Thermometric Equipment. An armored thermometer or dial thermometer of adequate range shall be fixed in the bituminous feed line at a suitable location near the charging valve at the mixer unit, and shall indicate the temperature of the bituminous material. The plant shall also be equipped with a recording thermometer, pyrometer or other thermometric instrument so placed at the discharge chute of the dryer as to indicate and record automatically the temperature of the heated aggregates.

(6) Dust Collector. The plant shall be equipped with a dust collector capable of wasting or uniformly returning to the plant all or any part of the material collected as directed. Dust collecting systems shall be installed and operated in compliance with NJAC 7:27-6.1 Et Seq.

(7) Safety. Adequate and safe stairways to the mixer platform and sampling points shall be provided and guarded ladders to other plant units shall be placed at all points where accessibility to plant operations is required. Overhead protection shall be provided at locations deemed necessary.

A hoist or pulley system shall be provided to raise scale calibration equipment, sampling equipment and other similar equipment from the ground to the mixer platform and return.

All gears, pulleys, chains, sprockets, and other hazardous moving parts shall be guarded and protected. Ample and unobstructed space shall be provided on the mixing platform. A clear and unobstructed passage shall be maintained at all times in and around the truck loading area. This area shall be kept free from drippings from the mixing platform.

Accessibility to the top of truck bodies shall be provided by two platforms located away from the mixing plant to enable samples and temperature data to be obtained from each side of loaded trucks. One platform is acceptable if the truck has room to turn around and return to the platform.

In addition to the above, the plant shall conform to all state and local safety requirements. When plant production occurs during nighttime hours, lighting shall be provided throughout the plant operations, plant laboratory and truck scale areas to ensure a clear view of the operations.

(8) Truck Scales. Platform truck scales shall be a direct-reading, cabinet dial type or an electronic load cell type with a visual indicating device capable of automatically printing both gross and tare weight and time and date on the delivery ticket. The time and date may be printed automatically by a time clock each time the truck passes over the scale. The scales shall be equipped with a motion detection device or a time delay relay which prevents printing the weight on the delivery ticket until the scale is fully at rest. Tare beams must be removed or permanently locked in place.

The scale shall have a manufacturer's rating equal to or greater than the maximum gross load being weighed, and the accuracy and certification requirements shall be as specified for plant scales in subheading 4 of the fifth paragraph of subpart b.

The approaches to the scale at both ends shall have a level grade at the same elevation as the platform. The scale cabinet and dial and the mechanical weight recorder shall be housed in a suitable shelter, furnished with adequate heat and light.

(9) Surge And Storage Bins. A plant may be permitted to store hot mixture in a surge or storage bin provided the bin has received prior evaluation and approval by the department. Use of the bin shall be in conformance with the limitations on retention time, type of mixture, heater operation, bin atmosphere, bin level or other characteristics set forth in the engineer's letter of approval.

Each bin shall be equipped with a device that visually or audibly signals automatically when the material in the bin reaches the 25 plus or minus 5 ton. The signal device shall be visible or audible from within the plant laboratory and shall remain in operation until the bin level exceeds the specified minimum.

An evaluation of a surge or storage unit will be made by the department upon written request by the supplier. The supplier shall submit with his request two copies of plans for its surge or storage system showing bin capacity, heating and splitter arrangements. The evaluation determines the degree of composition uniformity, the temperature characteristics and the degree of asphalt cement hardening of the mixture processed through the surge or storage unit. Bin usage that consistently results in mixtures having a gradation temperature and asphalt hardening properties of no less quality than acceptable mixtures discharged directly from the plant will be approved.

For bin evaluation, the method of sampling, rate of sampling and testing, and analysis procedures will be performed in accordance with the requirements of storage of hot mix asphalt, New Jersey Department of Transportation materials procedure MP-34, "Approval of Storage Silos for HMA plants'.

The analysis of asphalt hardening performed as a part of the pre-qualification of the surge bin system shall consist of a comparison of the penetration of the asphalt cement from mixture recovery samples obtained at the plant discharge and the surge bin discharge. The penetration of the asphalt cement recovered from the stored mixture samples is acceptable if the average penetration is at least 85 percent of the average penetration of the asphalt cement recovered from mixture samples from the plant discharge. Recovery of asphalt from mixture samples will be performed in accordance with ASTM D 1856.

In the event that the surge or storage system is changed or altered, the department shall be notified of the modification. Any radical departure necessitates re-evaluation. The department may re-evaluate any surge or storage system whose performance becomes suspect due to deficiencies in mixture quality.

(10) Incidental Equipment. The plant shall be furnished to include all other equipment necessary for proper and continuous operation.

- B. Special requirements for manual and fully automated batch type plants. Daily checks shall be made to ensure that hoppers are discharging completely and that the balance returns to zero tare whenever the hoppers are emptied. When directed, checks shall be made to verify the accuracy of the batch scales within the normal weighing range and to ensure that the interlocking devices and automatic recordation equipment are functioning properly. When the accuracy of the batch scales are not within the normal weighing tolerances, the department reserves the right to require that all trucks be weighed on an approved truck scale.

For mixes containing reclaimed asphalt pavement, the batch plants shall have a means for adding the reclaimed asphalt pavement to the heated new aggregate in a manner that does not damage the asphalt in the reclaimed material and provides control for proportioning the reclaimed asphalt pavement into the mixture. If the reclaimed asphalt pavement is introduced into the system prior to the hot bins, the proportioning controls shall include weigh belts or belt scales which electronically interlock the new aggregate feed with the reclaimed asphalt pavement feed and vary the feed rates, as required, to maintain the required ratio of new aggregate to reclaimed asphalt pavement.

The recycled bituminous mixtures shall be prepared by the heat transfer method of recycling which means that the reclaimed asphalt pavement shall not come in direct contact with the flame in the dryer. When preparing mixtures by the heat transfer method, the batch plant shall be operated as a conventional plant except that the temperature of new aggregate leaving the dryer and the time interval of the dry and wet mixing cycles may need to be adjusted and provisions must be made for the proportioning of the recycled asphalt pavement into the mixture.

Prior to being combined with the heated new aggregate, the reclaimed asphalt pavement shall pass through a 2 1/2 inch vibrating scalping screen.

Fully Automated Batch Type Plants Shall Include The Following:

1. **Dryer.** Plants shall include a dryer or dryers which continuously agitate the aggregate during the heating and drying process. The dryer shall be capable of drying and heating the aggregate to the

specified moisture and temperature requirements without leaving any visible unburned oil or carbon residue on the aggregate when discharged from the dryer.

2. **Screens.** Plant screens shall be capable of screening aggregates to the specified sizes and proportions and shall have capacities in excess of the capacity of the mixer.
3. **Aggregate Hot Bins.** The plant shall include at least four aggregate storage bins of sufficient capacity to supply the mixer when it is operating at full capacity. Bins shall be arranged to assure separate and adequate storage of appropriate fractions of the mineral aggregates. Separate dry storage shall be provided for mineral filler or hydrated lime when used and the plant shall be equipped to feed such material into the mixer accurately and uniformly. Each bin shall be provided with overflow pipes, of such size and at such locations as to prevent backing up of material into other compartments or bins. Each compartment shall be provided with an individual outlet gate, constructed so that when closed there shall be no leakage. The gates shall cut off quickly and completely. Bins on fully automated plants shall be provided with means to obtain representative samples. Bins shall be equipped with a device that visually or audibly signals automatically when the level of aggregate reaches the lowest quarter point. The signal device shall be visible or audible from within the plant laboratory and shall remain in operation until the bin level exceeds the minimum.
4. **Plant Scales.** All plant scales shall be of the springless dial type or electronic load cell type, with a readout, and shall be accurate within the tolerances permitted by the New Jersey Department of Law and Public Safety, Office of Weights and Measures, and shall conform to the requirements of the National Bureau Of Standards Handbook 44. Scales shall be tested semiannually and certified by the Office of Weights And Measures, New Jersey Department Of Law and Public Safety, or A Municipal Weights And Measures Agency. This semiannual inspection shall be performed by an approved private scale company, if the Office of Weights and Measures, New Jersey Department of Law and Public Safety, or A Municipal Weights And Measures Agency cannot perform the work.

Scales or slave systems shall be so located that they are plainly visible to the plant operator at all times.

The graduation of scales used in weighing amounts of aggregates less than 5000 pounds shall not be greater than 5 pounds for amounts of aggregates from 5000 to 10000 tons, not greater than 10 pounds; and for amounts of aggregates in excess of 10000 pounds, not greater than 0.1 percent of the capacity of the scales.

Scales for weighing bituminous material shall conform to the requirements for aggregate scales except that they shall read to the nearest pound and shall have a capacity of not more than 250 percent of the amount of the normal amount of asphalt required.

All plants shall be capable of continuously weighing, within the tolerances specified, the various components of the mixture for the full range of batch sizes. All tolerances are based on the total batch weight of the bituminous mix.

WEIGHING TOLERANCES	PERCENT
Each Aggregate Component	+/- 1.5
Mineral Filter	+/- 0.5
Bituminous Material	+/- 0.1
Zero Return (Aggregates)	+0.5
Zero Return (Bituminous Material)	+0.1

If mineral filler is used in a batch cycle, the allowable tolerance for the aggregate component weighed just prior to the filter in a cumulative weighing system shall be plus or minus 0.5 percent.

5. **Weigh Box Or Hopper.** The equipment shall include a means for accurately weighing each size of aggregate in a weight box or hopper suspended on scales and of ample size to prevent overflow to the pugmill.

The discharge gate shall close so that no material is allowed to leak into the mixer while a batch is being weighed. The weigh box or hopper shall be supported on fulcrums and knife edges so constructed that they are not easily thrown out of alignment or adjustment.

6. **Bituminous Control.** When a bituminous material bucket is used, it shall be a type recommended by the plant manufacturer. The length of the discharge opening or spray bar shall be not less than three fourths the length of the mixer and it shall discharge directly into the mixer. The bituminous material bucket discharge valve and spray bar shall be adequately heated. The plant shall have an adequately heated, quick-acting, nondrip charging valve located directly over the bituminous material bucket.

When a volumetric meter is used, it shall automatically meter the asphalt into each batch. The dial to indicate the amount of bituminous material shall have a capacity of at least 10 percent in excess of the bituminous materials required in one batch. The meter shall be constructed so that it may be locked at any dial setting and automatically resets to this reading after the addition of bituminous material to each batch. The dial shall be in full view of the mixer operator.

For all bituminous control units the flow of bituminous material shall be automatically controlled to begin when the dry mixing period is over. All of the bituminous material required for one batch shall be discharged within 15 seconds after the flow has started. The size and spacing of the spray bar openings shall provide a uniform application of bituminous material for the full length of the mixer.

7. **Mixer.** The batch mixer shall be capable of producing a uniform mixture within the job mix tolerances. If not enclosed, the mixer box shall be equipped with a dust hood to prevent loss of dust.

The clearance of paddles shall not exceed 1 1/2 inches from all fixed and moving parts.

8. **Control Of Mixing Time.** The mixer shall be equipped with an accurate time lock to control the operations of a complete mixing cycle. It shall lock the weigh box gate after charging of the mixer until the closing of the mixer gate at the completion of the cycle. It shall lock the bituminous material discharge throughout the dry mixing period and shall lock the mixer gate throughout the dry and wet mixing periods. The dry mixing period is defined as the interval of time between the opening of the weigh box gate and the start of introduction of bituminous material. The wet mixing period is the interval of time between the start of introduction of bituminous material and the opening of the mixer gate.

The control of the timing shall be adjustable and capable of being set at intervals of 5 seconds or less. A mechanical batch counter shall be installed as a part of the timing device and shall be so designed as to register only completely mixed batches.

The setting of time intervals shall be performed in the presence of the engineer and shall be such as to provide aggregate coating as specified in subsection 903.02.

9. **Automated Batching And Mixing Control.** Fully automated plants shall include an automatic batching and mixing control system including an automatic printer system conforming to the following:

- A. The recording equipment and batch scales shall be interlocked and the panels providing access to interlocking devices shall be maintained under sealed conditions.

- B. The system shall contain auxiliary interlocking cutoff circuits to interrupt and stop the automatic cycling of the batching operations any time the weighing tolerances are exceeded or when any aggregate bin becomes empty or when there is a malfunctioning of any portion of the control system. A platform truck scale is not required. If, however, the automatic proportioning or recording devices become inoperative or inaccurate, the plant shall be operated manually in conformance with all the requirements for manual batch plants, including a platform truck scale.
- C. The department will make independent checks on batch weights by weighing trucks before and after loading and may request an inspection of the plant scales by the Office of Weights and Measures, New Jersey Department of Law and Public Safety for verification of the automatic printout tickets.

Modifications to batch plants required for the use of 21 to 50 percent of reclaimed asphalt pavement are as follows:

- A. The dryer may have to be operated at higher temperatures. Modifications to the dryer and the dust collection system may be necessary to prevent damage.
- B. At the beginning of production of a recycled bituminous mixture in a batch plant, a dry mixing period of 25 seconds shall be used for combining materials in the pugmill. The wet mixing period shall be established initially as 25 seconds. Modifications may be required to these periods if they do not prove effective for breakdown of lumps of the reclaimed material, melting of the old asphalt and coating of aggregate.
- C. The new aggregate shall be heated to a temperature high enough to produce an acceptable mixture temperature after being combined with the cold reclaimed asphalt pavement material, mineral filler, if needed, and new asphalt. It is anticipated that an aggregate temperature in excess of 500 degrees f may be necessary.
- D. The preheating of the reclaimed asphalt pavement material may facilitate lowering heating requirements for the aggregate. Any such preheating method shall be approved prior to its use.
- C. Special requirements for drum mixing plants. Drum mixing plants may be used in the preparation of bituminous paving mixtures. The heating, coating and mixing of the bituminous mixture shall be accomplished in a parallel flow dryer-mixer.

Drum Mixing Plants Shall Include The Following:

1. **Aggregate Bins.** The fine aggregate bin compartment shall be equipped with a vibrator or other anti-bridging device which is automatically actuated when bridging of the material occurs and which automatically shuts off when continuous material flow is restored.
2. **Mineral Filler Bin.** When mineral filler is to be added, it shall be from a bin and feeder separate from the aggregate cold bins. Equipment shall be provided to feed the mineral filler at adjustable rates. The mineral filler feed rate in tons per hour shall be accurate within 3 percent of the indicated rate throughout the range of the plant's production capacity. The feeder shall be interlocked in such a manner that production is stopped if the flow of mineral filler is interrupted.
3. **Aggregate Feeder.** The plant shall have a mechanical system for uniformly and continuously feeding each aggregate in its proper proportion onto a collecting belt and then into the drum mixer.

The feeder system shall be designed so that prior to entering the mixer, the aggregates on the collector belt pass through a 50 millimeter scalping screen or other device that removes oversize material or debris. One feeder shall be provided for each bin compartment. Each aggregate feeder shall be interlocked in such a manner that production is stopped if flow of aggregate from any of the cold bins is interrupted.

The control of the quantity of aggregate fed to the drum mixer shall be by a variable speed system which provides for total and proportional control.

The individual bin feeder belts or the intermediate collecting belt that delivers the aggregate to the main feed for the drum mixer shall be equipped with belt type scales (load cells) capable of continuously displaying, at the operator's station, the weight of aggregate flow in tons per hour or the corresponding percentage of total mix from each individual bin and the accumulated total from each bin in tons. The aggregate feed rate in tons per hour from each bin shall be accurate within 1 percent of the indicated rate throughout the range of the plant's production capacity.

Means shall be provided for conveniently diverting the aggregate cold feed delivery into trucks or other containers for checking the accuracy of the aggregate feed system. Means shall be provided for obtaining representative samples of the composite aggregate from the main feed to the drum mixer at any time during production.

For mixes containing reclaimed asphalt pavement, the drum mix plant shall have a means for adding the reclaimed asphalt pavement to the dryer-mixer in a manner that does not damage the asphalt in the reclaimed material. Control shall be provided for proportioning the reclaimed asphalt pavement into the mixture.

Means shall be provided for compensating for the moisture in the reclaimed asphalt pavement.

Prior to being combined with the heated new aggregate, the reclaimed asphalt pavement shall pass through a 2 1/2 inches vibrating scalping screen.

4. **Metering System.** The plant shall have a metering system which introduces the proper amount of bituminous material into the mix.

The system shall be capable of measuring the quantity and temperature of the bituminous material being introduced into the mix and transmitting that data to the operator's station. The metering system shall be interlocked in such a manner that production is stopped if the flow is interrupted.

The metering system shall include a temperature compensation device to correct the quantity of bituminous material introduced into the mix to 60 degrees f. The flow of bituminous material to the drum mixer shall be continuously displayed in the operator's station in tons per hour, corrected to 60 degrees f, or as the corresponding percentage of total mix. The feed rate in tons per hour shall be accurate within 1 percent of the indicated rate throughout the range of the plant's production capacity. The accumulated weight of bituminous material fed to the mixer shall be totaled.

Convenient means shall be provided for diverting the bituminous material into trucks or other containers for checking the accuracy of the metering system.

5. **Proportioning Controls.** The combined aggregates shall pass over a weigh belt or belt scale that is electronically interlocked with the bituminous material metering system in such a manner as to automatically vary the bituminous material feed rate, as required to maintain the required bituminous material content in the mixture.

Provisions shall be made for introducing the moisture content of the cold feed aggregates into the composite aggregate weigh belt signal and correcting wet aggregate weight to dry aggregate weight. The dry weight of the composite aggregate flow shall be continuously displayed by electronic readout at the operator's station in units of tons per hour and shall be totaled. The composite aggregate feed rate shall be accurate within 1 percent of the indicated rate. Belt conveyers shall be equipped with scrapers or other suitable devices to prevent adherence or other loss of the weighed cold feed aggregate.

Prior to the start of production of department mixes, plant controls shall be calibrated. Any changes in or modifications to the equipment or operation occurring subsequent to the initial calibration shall be reported to the engineer. Depending on the nature and extent of the

modifications made, calibration checks or a new plant calibration may be directed. Recalibrating the plant also may be directed if the finished mixture displays composition deficiencies. For each drum mix plant placed in operation, two complete sets of plant drawings, a plant operator's manual and a plan detailing the method of plant calibration shall be submitted. The engineer will witness the calibration of the individual cold feeders at several production rates throughout the range of plant's capacity. A copy of the computations for the combined rate of flow and a plot of calibration charts shall be submitted. Such charts shall indicate the rate of aggregate delivery in tons per hour from each cold feeder for particular dial settings and gate openings. Calibration points shall be determined by independently diverting each cold feed into trucks (or running each feed through the plant) and determining the proper console dial setting corresponding to the measured rate of delivery. Such calibration points shall be determined in increments of approximately 100 tons per hour of total aggregate flow.

The engineer will witness a check on the mineral filler and bituminous material feeds at several production rate increments throughout the range of the plant's capacity. Calibration of the bituminous material metering system and subsequent checks shall be accomplished by diverting the bituminous material into trucks or other containers for weight or volumetric measurements. The method used to calibrate the mineral filler feeder system is subject to approval. The procedures shall be sufficient to assure that the controls are marked to correspond with the calibration of the bituminous material and mineral filler feeds.

6. **Drum Mixer.** The drum mixer shall be the type that continually agitates the mixture of aggregate and bituminous material during heating and in which the aggregate or bituminous material is not adversely affected in the drying and heating operations. The mixer discharge shall be equipped with a pyrometer or thermometer probe to record the temperature of the mixture, and the data transmitted to the operator's station.

Methods and facilities shall be provided for safety and conveniently obtaining representative mixture samples prior to the mixture's introduction into the surge bin.

The engineer may perform test comparisons between the consistency of the bituminous material in its original form from plant tank samples and in processed form from mixture recovery samples obtained prior to the mixture's introduction into the surge bin. The results of such consistency tests will be used to determine whether a processing improvement is necessary to eliminate excessive volatilization, oxidation or other causes of premature hardening.

7. **Surge Bin.** The plant shall be provided with a surge bin system of adequate capacity to minimize production interruptions during the normal day's operation. The surge bin shall conform to Subheading 9 of the Second Paragraph of Subpart A. Above.
8. **Emission Control System.** The plant shall be equipped with an emission control system so as to meet all applicable limitations concerning emissions.
9. **Control Console.** The following items shall be part of a control furnished in the operator's station:
 - A. Cold aggregate feed controls capable of both total and proportional control of the aggregates.
 - B. Dryer burner controls that automatically control the temperature of the mix and record the mix temperature at the dryer discharge.
 - C. Aggregate weigh belt readouts displaying the weight of material being proportioned from each aggregate bin in tons per hour or the corresponding percentage of total mix weight and the total flow over the main feeder to the drum mixer in tons per hour. The accumulated weights in tons from each bin and the total feed to the mixer shall be separately totaled. These separate totals shall be either continuously displayed or available on demand from a printout device.

- D. Mineral filler readouts displaying the weight of material being proportioned from the mineral filler bin in tons per hour or the corresponding percentage of total mix weight together with an accumulative total in tons.
- E. Bituminous metering system readouts indicating the quantity of asphalt, corrected to 60 degrees F, being proportioned into the mix together with an accumulative total in tons, and a recording pyrometer or thermometer that records the temperature of the bituminous material at the pump.
- F. Proportioning controls that set the bituminous material content as well as the aggregate moisture adjustment.

Modifications to drum mixing plants required for the use of 26 to 50 percent of reclaimed asphalt pavement are as follows:

1. The mixing time shall be such as to achieve an intimate blending of the new and reclaimed materials, and a complete coating of all aggregate particles. If more than an occasional lump of reclaimed material is observed in the mixture as discharged from the drum, the mixing time in the drum shall be modified or other changes in the production process made to correct this condition.
2. The temperature of the mixture at discharge from the plant or surge and storage bins shall be maintained at or above the minimum laydown temperature.

404.05 PLANT LABORATORY.

A plant laboratory shall be provided and maintained at each plant site for use of the engineer for sampling and acceptance testing, and for use of the producer for quality control testing during periods of production. The plant laboratory shall also include an office area for use by the engineer. The costs of the plant laboratory and all the facilities and equipment therein shall be included in the other items in the proposal, and no separate payment will be made for the plant laboratory.

The producer's laboratory technician shall be present during periods of mix production.

The producer's quality control technician must be certified by the society of asphalt technologist and New Jersey, Inc. As an asphalt technologies, Level I. Effective January 1, 2002, the HMA producer's quality control technician must be certified by the society of asphalt technologists of new jersey as an asphalt technologist level II. Equivalent technician certification by Mid-Atlantic Region Technician Certification Program (MARTCP) may be substituted for NJSAT Level I or Level II.

The plant laboratory shall be located to provide an unobstructed view of the trucks as they are loaded. The plant laboratory, including office area, shall have a floor area of not less than 21 square meters, exclusive of sanitary facilities, a ceiling height of not less than 2.3 meters, adequate ventilation and artificial lighting, and sanitary facilities according to subsection 107.10 except that they shall be within 100 meters of the laboratory. The plant laboratory shall be weather-tight, heated, and air-conditioned to maintain temperatures for testing purposes between 20 and 27 degrees C, and shall have the following:

1. Work benches, totaling not less than 0.6 by 4.5 meters, and two stools.
2. Two desk, one table, and at least three-armed desk chairs.
3. Four-drawer, legal-size file cabinet with lock and two keys.
4. Shelves and supply cabinets.
5. Electronic calculator with printout tape.
6. Water cooler capable of dispensing hot and cold water, with refrigerator, supplied with bottled water.
7. Telephone, direct, private line with no monitoring or recording devices attached.

8. Class ABC fire extinguisher, or a class a and a class b fire extinguisher, meeting fire underwriters' approval.
9. First-aid box, containing the following list of supplies:

QUALITY	SIZE	ITEM
32	19 BY 75 MM	BRAND SHEER BANDAGES
20	25 BY 75 MM	BRAND FABRIC BANDAGES
4	MEDIUM	NON-STICK PADS
2	50 MM	SOFT-GUAZE BANDAGES
2		OVAL EYE PADS
1	1300 MM	TRIANGULAR BANDAGE
1	13 BY 4500 MM	HYPO-ALLEGGERGENIC FIRST-AID TAPE
10		ANTISEPTIC WIPES
1	3.5 G	BURN CREAM, FOIL PACK
1	227 G	FIRST AID CREAM
1	100 CAPLETS	TYLENOL EXTRA-STRENGTH OR GENERIC EQUIVALENT CAPLETS
1		SCISSORS
1		TWEEZER
1		FIRST-AID GUIDE
1	15 ML	OPHTHALMIC IRRIGATION SOLUTION
1		CONTENTS CARDS
10		DISPOSABLE GLOVES
10	0.33 ML	AMMONIA INHALANTS

10. Electrical outlets sufficient in number and capacity for operating the required equipment.
11. Display area, approximately 1.2 by 1.2 meters, for mounting control charts.
12. Mechanical shakers, screen, and sieves conforming to AASHTO M92. The mechanical shaker shall be installed and bolted down in a sound-dampening and dustproof enclosure. When acceptance procedures for fully automated batch plants using hot bin samples according to section 990, NJDOT B-5 are used, a 200-millimeter shaker and a larger shaker are required.
13. A minimum 300-millimeter diameter exhaust fan shall be provided in proximity to the mechanical shaker.
14. Sink with hot and cold running water having adequate pressure, drainboard, and drain capable of handling elutriable material.
15. Stand to hold sieves used in washing elutriable material.
16. Two-element hot plate or electric range having dial-type thermostatic controls to adjust the heat for drying aggregates.
17. Hood, enclosed on three sides, top, and bottom, and of such size as to enclose the operations of extractions, evaporation, and ashing as well as other operations in which a vapor or gas is emitted, and designed, constructed, and maintained in such a manner that any operation involving trichlorethylene within the hood does not require the insertion of any portion of an employee's body other than hands and arms, and which contains an exhaust system for exhausting air to the outside at the required linear velocity, all complying with OSHA safety and health standards.
18. Apparatus according to section 990, NJDOT B-3 and/or AASHTO T 308.

19. Apparatus according to AASHTO T 166.

20. Apparatus according to AASHTO T 245 for stability testing by the Marshall method including an automatic compaction hammer and extrusion jack.

21. Apparatus according to AAASHTO T 209.

22. Other necessary small hand tools required for sampling and testing.

23. Microcomputer and work station in conformance to section 106.06.

Accuracy and certification requirements for all weighting devices used for testing of HMA mixture samples shall be as specified for plant scales in subheading 4 of the fifth paragraph of subpart B of subsection 404.04.

HMA plants producing more than 2 300 tons of HMA mixture per day shall require increased laboratory facilities and equipment.

COMPENSATION

404.25 METHOD OF MEASUREMENT.

Bituminous concrete surface course will be measured by the ton excluding wasted material. The weight will be determined by one of the following methods:

1. A weigh ticket printed by an automatic printer system used in conjunction with an automated batching and mixing system. The printed ticket shall show the individual weights of the various components of the bituminous mixture in a batch, the total weight of each batch, and the sum of all batch weights in the truckload. The signature and official seal of a certified weighHMAster shall be affixed to each weigh ticket.
2. A weigh ticket printed by an automatic scale showing the tare and gross weights of the truck as determined for each trip and the time and date indicating when the truck was tared and when it departed from the plant. Time and date may be printed automatically by a time clock. However, the net weight must be documented on each delivery ticket by a certified weighHMAster. Fully automatic scales that print gross, tare and net weights are acceptable if the system is of an approved type in accordance with the requirements of the Department and the Office of Weights and Measures, Division of Consumer Affairs, Department of Law and Public Safety. The signature and official seal of a certified weighHMAster shall be affixed to each weigh ticket.

Automatic truck scale weighing devices must be approved and certified by the Office of Weights and Measures, Division of Consumer Affairs, Department of Law and Public Safety.

In the event of a breakdown of the automatic printing system, weight tickets showing the gross, tare and net weight of each truck, as entered and certified by a weighHMAster, will be accepted for a period not exceeding the necessary repair time as certified by a licensed repairman.

A weigh ticket shall be furnished for each truckload. Material will not be accepted unless accompanied by a weigh ticket, which shall be legible and clearly indicate the printed heading of the supplier and location of the batch plant, the title of the project for which delivery is intended, the time and day, truck number, lot number and mix number of material being furnished and the total net weight in each truckload.

SHIPMENT AND DELIVERIES.

All shipments will be made to the maintenance sites as listed in the proposal. The contractor will notify the supervisor of materials, at the New Jersey Department of Transportation offices located at 1035

Parkway Avenue, Trenton, New Jersey 08625 telephone: 609-530-3713, a minimum of 48 hours in advance of any shipment.

Deliveries must be arranged to be made between the hours of 8:00 a.m. and 3:00 p.m., on any state business day. No deliveries will be accepted after 3:00 p.m. except if extreme stock shortages exist which requires immediate deliveries, then other pre-arranged scheduled delivery times may be established.

In the event deliveries are not received within five (5) days after notification, the director, division of purchase and property may authorize the department to secure the full quantity of the requested delivery from the nearest available source, and the difference in price, if any, will be deducted from monies due the defaulting contractor.

F.O.B. PLANT.

A sufficient stockpile quantity of bituminous concrete winter mix patch material must be maintained at the contractor's plant site to meet the department's expected demand during the period November through April. If demand should exceed seventy-five (75) tons on any single day the contractor is expected to replenish the stockpile or provide material to meet the required demand within twenty-four (24) hours.

The department reserves the right to obtain material on a state business day during normal working hours (8:00 a.m. to 4:30 p.m.) or during such other extended hours within the normal hours access to the contractor's facilities is available.

The Department of Transportation will not request delivery of any materials awarded on an f.o.b. plant basis while the plant of the successful bidder or contractor is not normally in operation.

404.26 BASIS OF PAYMENT.

Payment will be made under:

PAY ITEM	PAY UNIT
BITUMINOUS CONCRETE STOCKPILE PATCH MIXTURE--DELIVERED	TON
BITUMINOUS CONCRETE STOCKPILE PATCH MIXTURE--F.O.B. PLANT	TON

Separate payment for asphalt cement will not be paid for but the cost thereof must be included in the price per ton bid for each of the bituminous concrete surface course mixtures.

SECTION 901 - AGGREGATES

901.01 GENERAL.

Aggregates from a single source and geological classification shall be used in any one construction item unless otherwise authorized.

Aggregates from different sources may be permitted if they are of the same geological classification and have similar specific gravities and color.

Gradations of aggregates in the various tables of this and other sections are the percentages passing by weight.

901.02 STOCKPILES.

The area for each stockpile shall be of adequate size, reasonably uniform in cross section, well drained and cleared of foreign materials.

Stockpiles at Portland Cement Concrete and HMA mixing plants shall be of sufficient size to provide for a minimum of one day's operations. The aggregate stockpiles shall be placed on a firm, hard surface such as a compacted aggregate or stabilized base, HMA or concrete surface, and shall be constructed by placing the aggregates in layers not more than 1 meter thick.

Aggregates from the haulway areas shall not be used. The piles shall be located so that there is no contamination by foreign material and no intermingling of aggregates from adjacent piles.

Aggregates from different sources, geological classifications, or of different gradings shall not be stockpiled near each other unless a bulkhead is placed between the different materials. Aggregates of different gradings and from different sources for use in blends shall be blended by proportion through the weigh hoppers. Aggregates found segregated or contaminated will be rejected for use. A rejected stockpile may be reconstructed for further evaluation. Aggregates shall be removed from stockpiles in a manner such as to prevent segregation.

Aggregates that require washing shall not be used sooner than 24 hours after washing or until the surplus water has drained out and the material has a uniform moisture content.

Stockpiles of rap to be used in HMA mixes shall not exceed 15 feet in height. Stockpiles shall be covered or otherwise protected to prevent build-up of moisture in the stockpile.

901.03 COARSE AGGREGATE.

Coarse aggregate shall be broken stone and washed gravel, blast furnace slag, and boiler slag conforming to Sub Sections 901.04, 901.05, 901.06 and 901.07 and shall be graded as shown in Subsection 901.20, table 901-1.

901.04 BROKEN STONE.

The broken stone shall be uniform in texture and quality, and shall conform to subsections 901.01, 901.02 and 901.03 and to the following quality requirements:

	MAXIMUM PERCENT
WEATHERED AND DECOMPOSED STONE	5
BROKEN STONE OTHER THAN THAT CLASSIFICATION APPROVED FOR USE	5
FLAT OR ELONGATED PIECES FOR GRADED MATERIAL NO. 67 & LARGER (LENGTH GREATER THAN 5 TIMES THE THICKNESS OR WIDTH)	10
ABSORPTION IN COLD WATER	
NO. 8 AND LARGER	1.7
NOS. 89 AND 9	1.8
SODIUM SULFATE SOUNDNESS, LOSS	
LEDGE ROCK	10
GRADED SIZES	10
ADHERENT FINES IN COARSE AGGREGATES	
HMA	1.5
PORTLAND CEMENT CONCRETE	1.0

The percent of wear (Los Angeles test) shall be as follows for various uses:

	MAXIMUM PERCENT
HMA SURFACE COURSE	40
HMA INTERMEDIATE OR BASE COURSE	45
CONCRETE SURFACE COURSE AND BRIDGE DECKS	40
CONCRETE, OTHER	50
DENSE-GRADED AGGREGATE BASE COURSE	50

Types of rock permissible for use in concrete and white concrete shall Be free from dirt and discoloring matter.

The geologic classifications are as follows:

1. Argillite shall mean a thoroughly indurated and cohesive rock composed predominantly of silt size or smaller particles of clay, quartz and feldspar or the fine-grained thermal recrystallization products of this assemblage (hornfels). It shall be bedded thickly enough so as not to break into thin pieces at planes of stratification.
2. Carbonate rock shall mean a thoroughly indurated and cohesive rock composed predominantly of calcite and dolomite, bedded thickly enough so as not to break into thin pieces at planes of stratification. Minerals insoluble in hot hydrochloric acid shall be discrete grains of quartz, clay and mica.
3. Gneiss shall mean a metamorphic rock consisting principally of quartz and feldspar. It shall have a dense structure and shall not break into thin pieces at lines of stratification, and shall have a uniform distribution of minerals.
4. Granite shall mean an equigranular or porphyritic igneous rock consisting principally of quartz and feldspar. It shall be of medium or fine grain texture.
5. Quartzite shall mean a metamorphic rock composed principally of quartz. It shall be quarried so that only the nonarkosic, uniformly compacted quartzites are included in the graded products, and shall not be schistose in structure.
6. Trap rock shall mean either basalt or diabase. It shall have a uniform distribution of constituent minerals.

901.05 WASHED GRAVEL.

Washed gravel shall be either crushed or uncrushed as specified. The gravel shall conform to subsections 901.01, 901.02 and 901.03 and to the following quality requirements:

	PERCENT
SODIUM SULFATE SOUNDNESS, LOSS .	10 MAXIMUM
SOFT PARTICLES AS DETERMINED BY SCRATCH HARDNESS TEST (SEE NOTE)	5 MAXIMUM
ABSORPTION IN COLD WATER	
NO. 8 SIZE AND LARGER	1.7 MAXIMUM
NOS. 89 AND 9	1.8 MAXIMUM
CLAY LUMPS, ORGANIC MATERIAL, COAL AND OTHER FOREIGN OR DELETERIOUS MATTER	0.5 MAXIMUM
(PERCENT BY WEIGHT OR VOLUME WHICHEVER IS GREATER)	
CHLORIDE CONTENT	0.06 MAXIMUM
CRUSHED GRAVEL MATERIAL WITH AT LEAST ONE FRACTURED FACE (NICKED GRAVEL WILL NOT BE CONSIDERED CRUSHED.)	60 MINIMUM

ADHERENT FINES IN COARSE AGGREGATES	
HMA	1.5 MAXIMUM
PORTLAND CEMENT CONCRETE	1.0 MAXIMUM

The percent of wear determined in according to the Los Angeles test shall be as specified for the various uses, except that the percent maximum loss for quartz gravel shall be 50 percent.

Quartz gravel shall mean a material composed of natural pebbles of which the overwhelming majority are coarsely crystalline quartz. The individual crystals within each pebble shall be intergrown into a tenacious, nonporous, interlocking texture which fractures as a single unit.

When the sodium sulfate soundness and scratch hardness tests total 10 percent or more, a petrographic analysis will be made to determine the amount of unsound and weathered material. Unsound and weathered materials shall not be more than 10 percent by weight.

901.10 AGGREGATES FOR HOT MIX ASPHALT (HMA)

- A. **Coarse Aggregate.** Coarse aggregate for HMA shall be broken stone or crushed gravel. Broken stone shall conform to subsection 901.04 except that carbonate rock may be used for the surface course only in shoulder areas, parking areas, or driveway. Crushed gravel shall conform to subsection 901.05 except that it need not be washed, and for surface course it shall contain not more than 30 percent of total carbonates as determined by Section 990, NJDOT A-4.

- B. Rap shall pass a 2 1/2 inch sieve.

The bituminous material contained in the rap shall be asphalt binder free from solvents or other contaminating substances.

When tested, the coarse aggregate contained in the rap shall conform to the requirements of subsection 901.04 for broken stone and to the requirements of subsection 901.05 for gravel.

When tested, the fine aggregate contained in the rap shall conform to the quality requirements in subsection 901.10, subpart (c).

- C. **Fine Aggregate.** Fine aggregate for HMA surface course shall be stone sand or natural sand. For HMA surface course mix I-4 HD, the fine aggregate shall be a blend containing a minimum of 50 percent stone sand and may contain a maximum of 100 percent stone sand.

Stone sand shall be manufactured from an aggregate source conforming to subsection 901.04, however, not more than 15 percent based on the oven dry weight shall pass the No. 200 sieve. When the percent passing the No. 200 sieve exceeds 15 percent, use of the stone sand will be permitted if blended with another approved sand so that the combination contains no more than 15 percent passing the No. 200 sieve based on stockpile samples theoretically combined. Each sand source used shall be fed into the plant through a separate cold feed hopper.

Natural sand shall consist of material composed of predominantly angular particles of quartz or other hard durable minerals conforming to the following quality and gradation requirements:

	MAXIMUM PERCENT
MICA	2.0
ABSORPTION, COLD WATER	2.0
SODIUM SULFATE SOUNDNESS, LOSS	5.0
CLAY AND CLAY LUMPS AS DETERMINED BY AASHTO T 88	5.0

SIEVE SIZE	PERCENT
3/8 INCH	100
NO. 4	95-100
NO. 8	80-100

Natural fine aggregates for the surface course shall be washed and graded products. After washing, not more than a total of 5 percent based on oven dry weight shall pass the No. 200 sieve.

Instead of the above requirements for gradation and washing, the appropriate provisions of ASTM C 33 may be substituted, except that not more than a total of 5 percent based on oven dry weight shall pass the No. 200 sieve.

901.14 MINERAL FILLER.

Mineral filler for ham shall be broken stone conforming to subsection 901.04, fly ash conforming to subsection 919.07, or other inert mineral matter, free from lumps and foreign materials.

Mineral filler shall be of such quality that a HMA mixture containing the filler shall retain 70 percent of its initial strength after an immersion cycle of 14 days when prepared according to AASHTO T 167 and tested according to AASHTO T165.

The mineral filler shall conform to the following grading requirements:

SIEVE SIZE	PERCENT
NO. 50	95-100
No. 200	70-100

901.18 SAMPLING

Sampling will be performed according to the following:

AGGREGATES:

Coarse, Size No.	
4 & 467	70 POUNDS FOR EACH 1000 TONS
5, 56 & 57	50 POUNDS FOR EACH 1000 TONS
6, 67 & 68	30 POUNDS FOR EACH 500 TONS
1	150 POUNDS FOR EACH 1000 TONS
2 & 24	100 POUNDS FOR EACH 1000 TONS
3 & 357	90 POUNDS FOR EACH 1000 TONS
7 & 78	20 POUNDS FOR EACH 250 TONS
8, 89, 9 & 10	10 POUNDS FOR EACH 250 TONS

Dense - graded according to AASHTO T2 for each 500 cubic yards

FINE 10 POUNDS FOR EACH
500 TONS

SOIL DESIGNATION:

I-1, I-2, I-3, I-4	ACCORDING TO AASHTO T 2 FOR EACH
I-5, I-6, I-7, I-8, I-9 & I-10	500 CUBIC YARDS.
I-11, I-12, & I-13	ACCORDING TO AASHTO T 2 FOR EACH 500 CUBIC YARDS (SEE NOTE)
BORROW EXCAVATION, ZONE 3	ACCORDING TO AASHTO T 2 FORE EACH 2,000 CUBIC YARDS.
MINERAL FILLER	1 QUART FROM EACH SOURCE
RUBBLE STONES	SUBJECT TO TEST AND INSPECTION BEFORE SHIPMENT

Note: After initial 10,000 cubic yards have been sampled, then one sample for each 2,000 cubic yards except if any sample fails or is borderline, then revert to one sample for each 500 cubic yards.

901.19 SAMPLING AND TESTING METHODS.

Sampling and testing will be performed according to the following:

AASHTO

- T 2-----SAMPLING AGGREGATES
- T 11-----AMOUNT OF MATERIAL FINER THAN 75 MM SIEVE IN AGGREGATE
- T 19-----UNIT WEIGHT AND VOIDS IN AGGREGATE
- T-21-----ORGANIC IMPURITIES IN SANDS FOR CONCRETE
- T 27-----SIEVE ANALYSIS OF FINE AND COARSE AGGREGATES
- T 37-----SIEVE ANALYSIS OF MINERAL FILLER
- T 84-----SPECIFIC GRAVITY AND ABSORPTION OF FINE AGGREGATE
- T 85-----SPECIFIC GRAVITY AND ABSORPTION OF COARSE AGGREGATE
- T 89-----DETERMINING THE LIQUID LIMIT OF SOILS
- T 90-----DETERMINING THE PLASTIC LIMIT AND PLASTICITY INDEX OF SOILS
- T 96-----INSTANCE TO ABRASION OF SMALL SIZE COARSE AGGREGATE BY USE OF THE LOS ANGELES MACHINE
- T 104-----SOUNDNESS OF AGGREGATE BY USE OF SODIUM SULFATE MAGNESIUM SULFATE
- T 112-----CLAY LUMPS AND FRIABLE PARTICLES IN AGGREGATE
- T 113-----LIGHTWEIGHT PIECES IN AGGREGATE
- T 165-----EFFECT OF WATER ON COHESION OF COMPACTED BITUMINOUS MIXTURES
- T 104-----SOUNDNESS OF AGGREGATE BY USE OF SODIUM SULFATE OR MAGNESIUM SULFATE

ASTM

- D4791-----**STANDARD TEST METHOD FOR FLAT PARTICLES.** Elongated particles, or flat and elongated particles in coarse aggregate.

NJDOT

- A-1-----MORTAR-MAKING PROPERTIES OF FINE AGGREGATES
- A-2-----DETERMINATION OF REFLECTANCE VALUE OF AGGREGATES
- A-3-----DETERMINATION OF PERCENTAGE OF MICA IN FINE AGGREGATE
- A-4-----DETERMINATION OF PERCENTAGE OF CARBONATES IN CRUSHED GRAVEL BY PETROGRAPHIC ANALYSIS.
- A-5-----DETERMINATION OF PERCENTAGE OF ADHERENT FINES PRESENT IN COARSE AGGREGATE
- A-6-----SHALE, SCHIST, SLATE AND SOFT AND DECOMPOSED PARTICLES IN SOIL AGGREGATE
- A-7-----RAPIDLY DETERMINING THE BREAKDOWN IN SIZES OF SOIL AGGREGATES
- A-8-----SCRATCH HARDNESS TEST FOR COARSE AGGREGATE PARTICLES

901.20 TABLES.

Tables referenced in the specifications are as follows:

Context this page included on corresponding page attached

SECTION 903 HOT MIX ASPHALT

903.01 COMPOSITION OF MIXTURES.

Composition of the mixture for of HMA surface shall be coarse aggregate, fine aggregate, and asphalt binder and may also include mineral filler and up to 15 percent rap. Not more than a total of 1 percent by weight contamination from crushed recycled container glass (CRCG) will be permitted in the finished mix.

For projects with 25 percent or less rap, the composition of the mixture for base or intermediate course shall be coarse aggregate, fine aggregate, and asphalt binder. It may also include mineral filler and up to 25 percent of rap, and/or up to 5 percent found bituminous shingle material, and/or up to ten percent CRCG for a combined total of up to 35 percent recycled materials. The coarse and fine aggregate portions of the HMA base course may contain RPCSA according to subsection 901.10 F.

For projects with 26 to 50 percent rap, the composition of the mixture for base or intermediate courses shall be coarse aggregate, fine aggregate, and asphalt binder and may also include mineral filler and a maximum of 50 percent by weight of recycled materials as follows:

RECYCLED MATERIALS

RECLAIMED ASPHALT PAVEMENT (RAP)		CCRG	GROUND BITUMINOUS SHINGLE MATERIALS PERCENT	MAXIMUM RECYCLED PERCENT
PERCENT	SOURCE	PERCENT		
0	---	0 TO 10	0	10
0 TO 25	OPEN SYS	0 TO 10	0 TO 5	35
26 TO 50	CLOSED SYS	0 TO 10	0	50

Closed system is defined as rap obtained from removal of HMA overlay or milling performed on project.

Open system is defined as rap obtained ROM other sources both on and off the project.

The maximum percent of rap and GBSM shall not exceed 25 percent.

The grade of asphalt binder will determined by the Department Laboratory for those projects that include the use of 26 to 50 percent of rap.

When rap is used, the supplier shall have in operation an ongoing daily quality control program to evaluate the rap as a minimum this program shall consist of the following:

1. An evaluation performed to ensure that the material complies with subsection 901.10, subpart B and compares favorably with the design submittal.
2. An evaluation of the rap material performed using a solvent to qualitatively evaluate the aggregate components to determine compliance with subsection 901.10, subparts A and C. quality control reports shall be made available to the engineer.

When the rap percentage exceeds 25 percent, a complete mix design including Marshall plugs shall be submitted.

Materials shall conform to the following subsections:

AGGREGATES FOR HMA -----901.10
MINERAL FILLER-----901.14
ASPHALT BINDER-----904.01

The several mineral constituents shall be combined in such proportions that the resulting mixture meets the grading requirements in subsection 903.05, table 903-1. In calculating the percentage of aggregates of the various sizes, the bituminous material is excluded.

903.02 FORMULA FOR JOB MIX.

A job mix formula for each mixture shall be submitted on forms supplied by the department, which shall include a statement naming the source of each component and a report showing the results of the applicable tests specified in subsection 903.05, table 903-5..

The job mix formula for each mixture shall establish the percentage of dry weight of aggregate passing each required sieve size and an optimum percentage of asphalt binder based upon the weight of the total mix. The optimum percentage of asphalt binder shall be determined according to the asphalt institute mix design methods for asphalt concrete, manual series number 2 (ms-2) Marshall method and shall a mixture that conforms to subsection 903.05, table 903-5. The job mix formula shall be within the master range specified in subsection 903.05, table 903-1 except when the optimum percentage of asphalt binder is less than specified, the engineer may approve the use of the optimum asphalt binder content. When plotted on a 0.45 power grading accumulation chart as used by the department, the aggregate gradation for the job mix formula shall produce a grading curve with no abrupt changes and approximately parallel to the curve of the grading limits specified in subsection 903.05, table 903-1.

In addition, three Marshall specimens (for each mix specified) molded according to the composition, including asphalt content proposed in the job mix formula, shall be submitted with the mix design forms. The engineer reserves the right to be present at the time of molding the Marshall specimens. The submitted specimens will be used to verify the properties of the job mix formula.

At the discretion of the engineer, the submission of Marshall specimens for verification of the properties of the job mix formula will not be required if the previous year's approved design for a particular mix is submitted with written certification that the same source and character of materials are to be used. When a previous year's design is approved for use, the initial lot provision of subsection 903.03 shall not apply and the first lot of the particular mix shall be lot No. 1 and is subject to reductions for nonconformance.

The job mix formula for each mixture shall be in effect until modification is approved.

The job mix formula which includes reclaimed asphalt pavement shall also include the following based on the weight of the total mixture:

Percentage of reclaimed asphalt pavement
Percentage of asphalt binder in the reclaimed asphalt pavement
Percentage of new asphalt binder
Total percentage of asphalt binder
Percentage of each type of new aggregate

For mixes containing reclaimed asphalt pavement, the job mix formula shall also establish the target percentage of dry weight of aggregate passing each required sieve size and the target percentage of recoverable bitumen (bituminous material) to be present in the recycled HMA mixture when discharged from the plant and when tested according to section 990, NJDOT B-3 OR AASHTO T308.

The job mix formula containing up to 25 percent of reclaimed asphalt pavement, may be established by modifying a previously approved mix design to allow for the introduction of reclaimed asphalt pavement except that the Marshall design procedure and the specimens will not be required.

Mixtures containing up to ten percent crushed recycled container glass shall require a formula for job mix as outlined in this subsection. The percentage of CRCG shall be included on the job mix formula.

Mixtures containing up to five percent GBSM shall require a formula for job mix as outlined in this subsection. The percentage of GBM shall be included on the job mix formula.

For mixes containing 26 to 50 percent of rap, the job mix formula shall be determined according to the asphalt institute mix design method MS-2, Marshall method, and shall comply with subsection 903.5,

table 903-5. The preparation of the mixture shall be modified to simulate the mixing process achieved by mixing rap with new aggregates and new asphalt binder. To achieve a homogeneous mixture at the specified molding temperature, the new aggregates must be heated to a temperature considerably higher than conventional hot mixes, and the mixing time must be extended.

For mixes containing 26 to 50 percent of rap, the operation of the plant shall be controlled so that the proportions being included conform to the job mix formula within the tolerances established for manual batch plants.

When unsatisfactory results for any specified characteristic of the work make it necessary, a new job mix formula may be established for approval. In such instances, if corrective action is not taken, the engineer reserves the right to require an appropriate adjustment.

Should a change in sources or properties of materials be made or significant changes in the properties of the rap occur, the engineer may require that a new job mix formula be established and approved before production can continue.

The producer shall perform quality control testing according to the approved quality control plan to keep the mix within the specified tolerances.

When two consecutive lot samples or three out of five consecutive lot samples of any mix or combination of mixes fail to conform to the job mix formula for the No. 8 sieve, No. 200 sieve, or the asphalt content, or the gradation for the remaining sieves falls outside the ranges listed in subsection 903.05, table 903-01, work will be stopped until corrective action is taken.

The temperature of the mixture at discharge from the plant or surge and storage bins shall be maintained at a minimum of 15 degrees F above the minimum laydown temperature required to deliver material to the project to achieve optimum compaction. In no case shall the mixture temperature exceed 325 degrees F.

The moisture content of the mixture at discharge from the plant shall not exceed one percent. Moisture determinations are based on the weight loss on heating for one hour in an oven at 280 plus/minus 5 degrees F of an approximately 1,500 gram sample of mixture. A minimum of one sample per lot but not less than two samples per day will be tested for moisture. Samples for moisture determinations will be obtained according to section 990, NJDOT B-2 or ASTM D 3665.

The total mineral aggregate and bituminous material shall be so combined and mixed that at least 95 percent of the coarse aggregate particles are entirely coated with asphalt binder as determined by AASHTO T 195. At the option of the engineer, random samples will be obtained from each of five trucks, and the adequacy of the mixing will be determined on the average of particle counts made on these five test portions. If the above requirement is not fully met, mixing time shall be increased as necessary to obtain the required degree of coating.

Resistance to plastic flow for HMA mixtures when combined in the proportions of the job mix formula shall conform to subsection 903.05, table 903-5 when tested according to AASHTO T 245 except reference to 1 inch maximum size aggregate is deleted and except the 75 blows of the compaction hammer are to be used on specimens for mix 1-2, 1-4, and 1-5 HD.

903.03 SAMPLING AND TESTING.

- A. **Drum Mix Plants.** Five random samples will be taken from each lot of approximately 3000 tons of each type of mix. When a lot of HMA is necessarily less than 3000 tons, samples will be taken at random for each type of mix at the rate of one sample for each 600 tons or fraction thereof.

At the drum mix plants, the HMA will be sampled and tested for compliance.

To determine the quantity of bitumen and the gradation of the aggregate in HMA mixtures for acceptance testing purposes; composition testing at the rate specified, will be performed each day for each type mixture according to section 990, NJDOT B-3 or AASHTO T 308. The producer's quality control technician shall be present during periods of mix production for the purposes of quality control testing and assisting the department's representative to ensure compliance.

- B. **Fully Automated Batch Plants.** Under the supervision of the engineer, five random samples shall be taken from each lot of approximately 3000 tons of each type of mix. When a lot of HMA is necessarily less than 3000 tons, samples will be taken at random for each type of mix at the rate of one sample for each 600 tons or fraction thereof.

Acceptance testing for gradation and asphalt binder will be performed using bin samples and printed weight tickets according to Section 990, NJDOT B-5 or AASHTO T308.

- C. **General Sampling And Testing Requirements.** Acceptance testing of HMA will be performed in a timely manner. Sampling will be performed according to AASHTO t 168, and subsection 990, NJDOT B-2.

The department will not perform the composition control testing or other routine test functions in the absence of or in lieu of the plant laboratory technician.

Acceptance testing does not preclude the engineer from requiring disposal of any batch or shipment without further testing which is rendered unfit for its intended use due to contamination, segregation, improper temperature or incomplete coating of the aggregate. For other than improper temperature, visual inspection of the material by the engineer is considered sufficient grounds for such rejection.

When materials are rejected for any of the above reasons, except for improper temperature, samples will be taken for testing. Should such testing indicate that the material was erroneously rejected, payment will be made for the rejected material.

HMA mixtures processed through a surge or storage system will be inspected visually to assure that they are essentially free of lumps of cold material. Any batch or shipment of material found to be so contaminated will be rejected and shall be disposed of.

- D. **Conformance To Job Mix Formula.** Conformance to the job mix formula will be determined on the basis of extraction origination oven samples taken and tested at the mixing plant for manual batch and drum mix plants and will be determined by plant print-out tickets and hot bin samples for fully automated batch plants.

The average of test results for the five samples or less for a lot shall conform to the job mix formula within the applicable tolerances of subsection 903.05, tables 903-2 and 903-3. Also the range of test results samples from a lot shall be within the applicable tolerances of subsection 903.05, table 903-4. Payment for any lot which does not comply with these requirements will be reduced according to subsection 903.05, table 903-6. The engineer may order the removal of any such material subject to the maximum reduction shown in subsection 903.05, table 903-6.

On each day of production at least one sample shall be obtained of the new aggregate from each cold feed bin, the rap from its cold feed, and the mineral filler. These samples shall then be tested to determine aggregate grading, and for rap used in mixes containing 26 to 50 percent of rap, the percent asphalt, and moisture content. The results of these tests will be theoretically combined and plotted on control charts supplied by the engineer.

- E. **Conformance To Control Stability Requirements.** Control stability will be determined on the basis of samples taken and tested at the mixing plant. Conformance to the control stability requirements specified in subsection 903.05, table 903-5 will be determined from the average of five stability determinations for each lot of material. The material for the stability determinations will be obtained according to section 990, NJDOT B-2 or ASTM D 3665 at the mixing plant at the same time that the random samples are taken for measurement of conformance to the job mix formula and tested for resistance to plastic flow. Payment for any lot that does not comply with the specified stability requirements will be reduced according to subsection 903.05, table 903-7. The engineer may order

the removal of any material subject to the maximum reduction shown in subsection 903.05, table 903-7.

- F. **Initial Production Lot.** Reductions for nonconformance to job mix formula and control stability requirements will not be applied to the initial lot each year for each type of mix, also these reductions will not be applied to the initial lot when a new job mix formula is approved in which a change of aggregate producer has caused the maximum specific gravity to change by more than 0.04 as determined by the engineer. The above waiver does not apply when the average result of the job mix formula conformance samples of the initial lot varies outside those limits for the No. 8 or No. 200 sieve or asphalt content shown in subsection 903.05, table 903-1, or the control stability shown in subsection 903.05, table 903-5.. In this case, the entire initial lot is subject to nonpayment. For the purpose of applying this requirement, if the job mix formula for a top course mix has its asphalt content at the lower limit of subsection 903.05, table 903-1, then the lower limit shall be decreased by 0.45 percent.

The initial lot each year is defined as the plant's first day's production, up to 1000 tons, for the first day in a calendar year. In the event the first day's production does not reach 600 tons, the initial lot is to be extended until the 600 ton level is reached or the project is completed. Every truck will be visually checked before the first sample being taken. The first sample shall be taken in the first 100 to 200 tons. The remaining samples shall be taken at a rate of one sample every 600 tons, starting at 600 tons. The random sampling numbers may be adjusted to suit production at the discretion of the engineer.

- G. **Plants Producing For Multiple Projects.** When a plant is producing HMA mixtures for two or more department projects at the same time, only one common set of lots for stability and job mix formula will be established and the samples taken for each lot shall apply to each project on which a part of that lot was used.

903.04 BITUMINOUS CONCRETE PATCH.

Bituminous concrete for patching may be used either as a hot mixture direct from a mixing plant or cold from a stockpile at temperatures as low as 15 degrees F. In addition, all mixtures shall be sufficiently workable to allow spreading and raking for a period of at least six months when stockpiled and shall be sufficiently stable after compaction to carry traffic without undue marking or displacement.

1. **Materials.** Materials shall conform to the following subsections:

AGGREGATES FOR BITUMINOUS CONCRETE-----	901.10
MINERAL FILLER-----	901.14
CUT-BACK ASPHALT, GRADE MC-250 OR	
MC-800 (NOTE)-----	904.02
INVERTED EMULSIFIED ASPHALT, GRADE IEMC-250	
OR IEMC-800-----	904.04

Note : Grades MC-250 and MC-800 shall contain an anti-stripping additive.

2. **Composition Of Mixture.** The bituminous concrete patch shall be composed of aggregates and bituminous materials combined in such proportions that the resulting composite blend meets the following:

SIEVE SIZE	TOTAL PERCENT
1/2 INCH	100
3/8 INCH	80-100
NO. 4	55-75
NO. 8	30-60
NO. 50	10-30
NO. 200	4-10
RESIDUAL BITUMEN CONTENT	5.5-7.5

In calculating the percentages of aggregates of the various sizes, the bituminous material is excluded.

Note: Material passing the 200 sieve may consist of fine particles of the aggregate or mineral filler, or both. Material passing the No. 40 sieve shall be non-plastic when tested in accordance with AASHTO T 90. Composition of mixture shall be determined according to section 990, NJDOT B-3 except that the material shall be dried at 140 degrees C for a period of three hours prior to beginning the extraction procedure.

3. **Preparation Of Mixture.** The aggregate shall be surface dry at the time of mixing, however, its temperature shall not exceed 121 degrees C. The temperature of the bituminous material shall not exceed 77 degrees C. The temperature of the components and the mixing time shall be such that a minimum of 90 percent of the aggregate is coated when tested in accordance with section 990, NJDOT B-7.

903.05 TABLES.

Tables referenced in the specifications are as follows:

TABLE 903-1 HOT MIX ASPHALT MIXTURES NEW JERSEY INTERAGENCY ENGINEERING COMMITTEE STANDARD HOT MIX ASPHALT MIXTURE DESIGN TABLE

MIX DESIGNATION AND NOMINAL MAXIMUM SIZE OF AGGREGATE

BASE COURSE

SURFACE COURSE

MIX	I-1	1-2	1-4 HD	I-4	I-5	I-5 HD
SIZE, MM	25.0	37.5	19.0	10.0	9.5	12.5

GRADING OF TOTAL AGGREGATE (COARSE PLUS FINE, PLUS FILLER IF REQUIRED). AMOUNTS FINER THAN EACH LABORATORY SIEVE (SQUARE OPENING) WEIGHT PERCENT.

SIEVE SIZE						
50 MM	----	100				
37.5 MM	100	90-100				
25.0 MM	90-100	80-100	100	100		
19.0 MM	60-80	65-95 (NA)	95-100	98-100		100
12.5 MM	---	50-85	75-95	88-98	100	72-98
9.5 MM	15-40	40-75 (NA)	65-85	65-88	80-100	60-82
75 MM	0-10	25-60	35-65	35-65	55-75	40-56
2.36 MM	---	20-45	25-36	25-46	30-56	28-37
1.18 MM	---	---	15-35	18-40	20-45	19-24
600 UM	---	---	10-30	12-30	15-35	13-19
300 UM	---	8-30	8-25	10-25	10-30	8-16
150 UM	---	---	---	---	---	---
NO. 200	---	4-7.5	4-7.5	4-7.5	4-8	3-6

ASPHALT BINDER, PERCENT BY WEIGHT OF TOTAL MIXTURES

	2.25-3.1	4-6	4.8-7	5-7	5-7	5-6
--	----------	-----	-------	-----	-----	-----

Material passing the No. 200 sieve may consist of fine particles of the aggregate or mineral filler, or both. Material passing the 425 micrometer sieve shall be non-plastic when tested in accordance with AASHTO T 90.

Maximum aggregate size requirements - The maximum size of coarse aggregate for any given mix on a project shall be no more than one-half of the proposed lift thickness on the project. (For example: if the

proposed lift thickness for an i-2 mix is 50 millimeters, the mix used must be 100 percent passing the 25 millimeter sieve even though the overall specification allows 80-100 percent passing the 25 millimeter sieve.)

Mix I-1 is not subject to the design requirements specified elsewhere.

(NA) denotes not applicable for NJDOT mix.

MIX DESCRIPTIONS:

1. I-1 is a permeable base course which should be used in a minimum lift of 75 millimeters.
2. I-2 is a dense-graded base course which may be used in full depth construction or as the bottom course in an overlay.
3. I-4 HD (heavy duty) is a 19 mm nominal maximum size surface course mix intended to be used on heavy traffic roadways.
4. I-4 is a 19 mm nominal maximum size surface course mix for medium to heavy traffic roadways.
5. I-5 is a 9.5 mm nominal maximum size surface course mix for low to medium traffic roadways.
6. I-5 HD (heavy duty) is a 12.5 mm nominal maximum size surface course mix intended to be used for thin lifts (less than 37.5 mm) on heavy traffic roadways.

**TABLE 903-2 TOLERANCES FROM JOB MIX FORMULA
FOR AVERAGE OF FIVE SAMPLES**

GRADATION MIX NO.	I-2	I-4HD	I-4	I-5	I-5HD
SIEVE SIZE					
ALL PLANTS	TOLERANCE PERCENTAGE (PLUS OR MINUS)				
2.36 MM	4.5	4.0	4.0	4.0	4.0
NO. 200	1.4	1.4	1.4	1.4	1.4
HMA (DRUM MIX PLANT)	0.45	0.45	0.45	0.45	0.45
HMA (FULLY AUTOMATED BATCH PLANTS)	0.15	0.15	0.15	0.15	0.15

**TABLE 903-3 TOLERANCES FOR JOB MIX FORMULA
FOR AVERAGE OF N SAMPLES FROM A SHORT LOT**

GRADATION MIX NO.		I-2	I-4HD	I-4	I-5	I-5HD
# OF SAMPLES	SIEVE SIZE					
	ALL PLANTS	TOLERANCE PERCENTAGE (PLUS OR MINUS)				
4	2.36 MM	5.0	4.5	4.5	4.5	4.5
4	NO. 200	1.6	1.6	1.6	1.6	1.6
HMA (DRUM MIX PLANTS)		0.50	0.50	0.50	0.50	0.50
HMA (FULLY AUTOMATED BATCH PLANTS)		0.15	0.15	0.15	0.15	0.15

GRADATION MIX NO.		I-2	I-4HD	I-4	I-5	I-5HD
# OF SAMPLES	SIEVE SIZE ALL PLANTS	TOLERANCE PERCENTAGE (PLUS OR MINUS)				
3	2.36 MM	6.0	5.0	5.0	5.0	5.0
3	NO. 200	1.8	1.8	1.8	1.8	1.8
HMA (DRUM MIX PLANTS)		0.60	0.60	0.60	0.60	0.60
HMA (FULLY AUTOMATED BATCH PLANTS)		0.20	0.20	0.20	0.20	0.20
2	2.36 MM	7.0	6.5	6.5	6.5	6.5
2	NO.. 200	2.2	2.2	2.2	2.2	2.2
HMA (DRUM MIX PLANTS)		0.70	0.70	0.70	0.70	0.70
HMA (FULLY AUTOMATED BATCH PLANTS)		0.25	0.25	0.25	0.25	0.25

TABLE 903-4 TOLERANCES FOR RANGE OF FIVE SAMPLES OR LESS

GRADATION MIX NO.		I-2	I-4HD	I-4	I-5	I-5HD
SIEVE SIZE ALL PLANTS		TOLERANCE PERCENTAGE				
2.36 MM		16.0	13.0	13.0	13.0	13.0
NO. 200		4.8	4.8	4.8	4.8	4.8
HMA (DRUM MIX PLANT)		1.5	1.5	1.5	1.5	1.5
HMA (FULLY AUTOMATED BATCH PLANTS)		0.4	0.4	0.4	0.4	0.4

Note: For any one characteristic the range is absolute difference between the smallest and largest value in the lot.

TABLE 903-5 DESIGN AND CONTROL

GRADATION MIX NO.	I-2	I-4HD	I-4	I-5	I-5HD
STONE					
CRITERIA	TEST LIMITS				
DESIGN STABILITY MINIMUM KN	6.7	8.0	6.7	5.3	8.0
CONTROL STABILITY MINIMUM LBS	5.3	6.7	5.3	4.0	6.7
FLOW VALUE 0.25 MM	6-18	6-16	6-16	6-16	6-16
DESIGN VOIDS IN MINERAL AGGREGATE MINIMUM %	12	13	14	16	15
DESIGN AIR VOIDS (NOTE 1) %	3-5	3-5	3-5	3-5	3-5
CONTROL AIR VOIDS AVERAGE OF 5 CORES (NOTES 1&2) %	2-8	2-8	2-8	2-8	2-8

Note 1: As determined from the values for the maximum specific gravity of the mix will be determined in accordance with AASHTO T 209 except that the minimum sample size may be waived in order to use a 100 millimeter diameter specimen. Bulk specific gravity of the compacted mixture will be determined in accordance with AASHTO T 166.

Note 2: As determined by the engineer from drilled pavement cores taken by the department. The air voids will be determined based on the bulk specific gravity and maximum specific gravity tests performed in the departments laboratory according to section 990, NJDOT B-9.

**TABLE 903-6 REDUCTION PER LOT DUE TO NONCONFORMANCE TO
JOB MIX FORMULA AND RANGE IN THE CHARACTERISTICS OF
ASPHALT CONTENT OR AGGREGATE PASSING
NO. 8 OR NO. 200 SIEVE
(SEE NOTE 1)**

DEVIATION OF AVERAGE OF FIVE SAMPLES OR LESS
FROM A LOT BEYOND APPLICABLE TOLERANCES IN
TABLES 903-2 AND 903-3 ABOVE. (PERCENT OF
TOLERANCE IN TABLE 903-2 ABOVE FOR
THE APPLICABLE TYPE PLANT)

REDUCTION PER LOT

1 TO 50	2%
51 TO 100	5%
OVER 100	10%

DEVIATION OF SAMPLE RANGE BEYOND APPLICABLE
TOLERANCE IN TABLE 903-4 ABOVE. (PERCENT OF
TOLERANCE IN TABLE 903-4 ABOVE FOR THE APPLICABLE
TYPE PLANT)

REDUCTION PER LOT

GREATER THAN 0.....	... 5%
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NOTE 1: Where more than one reduction due to nonconformance to job mix formula is applicable to a lot, only the greatest single reduction will be used.

**TABLE 903-7 REDUCTION PER LOT DUE TO NONCONFORMANCE
TO STABILITY REQUIREMENTS**

DEVIATION OF FIVE SAMPLE AVERAGE BELOW CONTROL STABILITY OF TABLE 903-5 (POUNDS)	REDUCTION PER LOT
1 TO 50	2%
51 TO 100	5%
OVER 100	10%

SECTION 904 - BITUMINOUS MATERIALS

904.01 ASPHALT BINDER.

Asphalt binder shall conform to AASHTO MP-1, "Standard Specifications for Performance Graded Asphalt Binder". Grade 64-22 shall be used except that an asphalt of softer grade may be directed to be used when the mixture contains rap and except where otherwise specified.

When specified, pg 76-22 asphalt binder shall be storage-stable, pre-blended, homogeneous, polymer modified asphalt binder using Styrene-Butadiene (SB) or Styrene-Butadiene-Styrene (SBS) formulations with rolling thin film oven test (RTFOT) residue having a minimum elastic recovery (ASTM D 6084) of 50 percent when tested for 60 minutes at 77 degrees F and 2 inches/minute elongation. A written certification of compliance shall be furnished for the polymer modified asphalt binder and shall be submitted according to subsection 106.04.

904.02 CUT-BACK ASPHALTS.

Cut-back asphalt of the rapid curing (RC) types shall conform to AASHTO M 81.

Grade RC-T shall conform to AASHTO m 81 and shall have the following:

	MINIMUM	MAXIMUM
WATER, % BY WEIGHT		0
VISCOSITY, FUROL AT 104 DEGREES F, SEC ...		40.0
DISTILLATION, % BY VOLUME OF TOTAL DISTILLATE TO 680 DEGREES F		
TO 320 DEG. F	35.0	
TO 374 DEG. F	55.0	
TO 437 DEG. F	75.0	
TO 500 DEG. F	85.0	
TO 600 DEG. F	90.0	
ASPHALT RESIDUE FROM DISTILLATION		
TO 680 DEG. F, % BY VOLUME, BY DIFFERENCE	45.0	
TESTS ON RESIDUE FROM DISTILLATION		
PENETRATION AT 77 DEG. F, 100 GMS, 5 SEC	80.0	140.0
DUCTILITY AT 77 DEG. F, CMS	100.0	

Cut-back asphalt of the medium curing (MC) types shall conform to AASHTO M 82.

Except when used as a penetrating prime coat, the use and storage of cut-back asphalts shall conform to NJAC 7:27-16 ET SEQ which includes the following limitations:

1. Shall be used only from October 15 through April 15.
2. When used for repairs, shall be a cold mix, stockpile material.
3. There shall be no emissions of volatile organic substances (VOS) under conditions of normal use.

904.03 EMULSIFIED ASPHALTS.

Emulsified asphalts of the rapid setting (RS), medium setting (MS) and slow setting (SS) types shall conform to AASHTO M 140. Cationic emulsified asphalts of the rapid setting (CRS), medium setting (CMS) and slow setting (CSS) types shall conform to AASHTO M 208.

904.04 INVERTED EMULSIFIED ASPHALTS.

Inverted emulsified asphalt of the medium curing (IEMC) type shall be prepared using a suitable grade of medium curing cut-back asphalt conforming to subsection 904.02, with the necessary water and emulsifier required. The inverted asphalt emulsion shall not be miscible with water in any proportion, shall remain homogeneous after 15 hours at 0 degrees F and shall conform to the following:

	IEMC-250	IEMC-800
KINEMATIC VISCOSITY AT 140 DEG F, CENTISTROKES	250-500	800-1200
SETTLEMENT, 7 DAYS, % MAX	... 1	1
DISTILLATION, BY WEIGHT ASPHALT CONTENT, % MIN	... 65	67
WATER, % .	3-12	3-12
SOLVENT (BY DIFFERENCE), % MIN 15	12
RESIDUE FROM DISTILLATION ABSOLUTE VISCOSITY 140 DEG F, POISES..... 300-1200	300-1200
DUCTILITY AT 77 DEG F, MILLIMETERS MIN 1000	1000
SOLUBILITY IN TRICHLOROETHYLENE		
BY WEIGHT, % MIN	98	98

Inverted emulsified asphalts shall contain not more than 8 percent volatile organic substances (VOS), by volume, and shall be used for mixed-in-place construction. Other limitation requirements and the use and storage of inverted emulsified asphalts shall conform to subsection 904.02.

904.05 SAMPLING AND TESTING METHODS.

Sampling and testing will be performed according to the following:

AASHTO

- T 40** SAMPLING BITUMINOUS MATERIALS
- T 44** SOLUBILITY OF BITUMINOUS MATERIALS IN ORGANIC SOLVENTS
- T 47** LOSS ON HEATING OF OIL AND ASPHALTIC COMPOUNDS
- T 48** FLASH AND FIRE POINTS BY CLEVELAND OPEN CUP

T 49 PENETRATION OF BITUMINOUS MATERIALS
T 51 DUCTILITY OF BITUMINOUS MATERIALS
T 53 SOFTENING POINT OF BITUMEN (RING AND BALL APPARATUS)
T 55 WATER IN PETROLEUM PRODUCTS AND BITUMINOUS MATERIALS BY DISTILLATION
T 59 TESTING EMULSIFIED ASPHALT
T 78 DISTILLATION OF CUT-BACK ASPHALTIC (BITUMINOUS) PRODUCTS
T 111 INORGANIC MATTER OR ASH IN BITUMINOUS MATERIAL
T 179 EFFECT OF HEAT AND AIR ON ASPHALT MATERIALS (THIN-FILM OVEN TEST)
T 201 KINEMATIC VISCOSITY OF ASPHALTS (BITUMENS)
T 202 VISCOSITY OF ASPHALTS BY VACUUM CAPILLARY VISCOMETER
T 240 EFFECT OF HEAT AND AIR ON A MOVING FILM OF ASPHALT (ROLLING THIN FILM OVEN TEST)

ASTM

D 6084 Test method for elastic recovery of bituminous material by ductilometer

NJDOT

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B-1 Determination of asphalt content of inverted emulsified asphalt

904.06 TEMPERATURE-VOLUME CORRECTION FACTORS.

Temperature-volume correction factors which shall be used to convert the volume of bituminous materials, measured at the temperature at the point of use, to the volume at 60 degrees F are found in the attached tables:

REFER TO ATTACHMENT A OF THIS RFP FOR THE TABLES

SECTION 990 - METHODS OF TESTS

This section consists of the following NJDOT methods of tests which Have been adopted and are used by the department.

A-2 determination of reflectance value of aggregates

1. **Scope.** This method of test is used to determine the daylight 45 degree--0 degree, luminous directional reflectance of fine and coarse aggregate.

2. **Apparatus.** The apparatus will conform to ASTM e 1347 and to the following:

The receptacle for testing fine aggregate will be a flat-bottomed dish with a diameter of 75 to 100 millimeters inches and a minimum depth of 13 millimeters.

The receptacle for testing the coarse aggregate will be of sufficient size to hold several kilograms of aggregate and will be at least 130 millimeters deep.

3. **Procedure.**

A. **Fine Aggregate.** Fill flat-bottomed dish to overflowing with representative sample. Strike off excess material until the fine aggregate is even with the top edge of the receptacle. Place a flat, clean 3.2 millimeter glass plate, approximately 4 inches square, on the reflectance standard and standardize the reflectometer. Select the standard that is closest to the sample being tested. Place glass plate and reflectometer on sample and take a reading. Repeat this procedure two times, using a different area selected from the total sample.

B. **Coarse Aggregate.** Fill flat-bottomed pan to a depth of about 100 mm with sample to be tested. Level material with a metal scoop. Standardize the reflectometer on reflectance standard as described above. Select the standard that is closest to sample being tested. Place glass plate

and reflectometer on prepared sample and determine reflectance. Take two additional readings at different locations on the surface of the material.

4. **Report.** Reflectance value will be an average of three readings reported to the nearest 1 percent.

A-3 DETERMINATION OF PERCENTAGE OF MICA IN FINE AGGREGATE

1. **Scope.** This method of test is used to determine the mica content of fine aggregate.
2. **Apparatus.** The apparatus will consist of the following:
 - A. Square opening No. 10 and 200 sieves conforming to ASTM E 11.
 - B. Balances for fine aggregate having a minimum capacity of 500 grams, sensitive to 0.1 gram or less. The analytical balances used in the mica determination will have a capacity of not more than 200 grams, sensitive to 1/10 of a milligram.
 - C. Ionizing brush, 3 inch length, equipped with a polonium ionizer built in the ferrule of the brush which is an alpha emitter and immediately neutralizes any surface in close proximity freeing it of static electricity.
 - D. Microscope, wide field, low power magnification 20x, working distance, 71mm (2.795 inches) field area 12.6 mm (0.496 inch).
 - E. Rubber-edged scraping blade with metal stem rubber edge approximately 4 inches in length.
 - F. Roundometer as described in ASTM d 1155.
3. **Selection Of Sample.** Sample as received in the laboratory will be taken from representative sample of field stockpile. Fine aggregate will be graded in conformance with current standard gradation specifications for the fine aggregate under test. A representative air-dried sample will be split to approximately 25 grams. The sample will be representative of material passed through a No. 10 mesh sieve and retained on a No. 200 mesh sieve. The 25 gram sample will then be kept in a friction top can until ready for test. This sample will be further reduced to two representative 1 gram samples, both of which will be tested for mica content.
4. **Procedure.** Weigh two 1 gram samples from the 25 gram sample on an analytical balance. Brush surface of vibrating glass panel with ionizing brush (see note). Adjust the height of slope of the glass panel to 1 3/4 inches. Set the vibrator amplitude control at such a position that flat particles on the upper half of the panel will move slowly up the slope, while the fine aggregate rolls down. Pour the sample onto the vibrating glass at such a rate that no bunching occurs. While the flat particles are moving toward the upper end of the panel, scrape mica particles into suitable receiver. Repeat this procedure until microscopic examination of each separation shows that 95 percent or more of the mica has been removed. Weigh the collected mica. Both 1 gram samples are to be tested.

Note: If mica adheres to the glass panel during the test, indicating static electricity, clean the panel and the brush with the ionizing brush.

5. Calculation.

$$\frac{\text{WEIGHT OF MICA IN GRAMS} \times 100 \text{ PERCENT OF MICA}}{\text{WEIGHT OF SAMPLE}} =$$

6. Report. Report the results of test to the nearest 0.1 percent. The average of the results of the two samples tested will be reported.

A-4 DETERMINATION OF PERCENTAGE OF CARBONATES IN CRUSHED GRAVEL BY PETROGRAPHIC ANALYSIS

1. **Scope.** This method of test covers the procedure for the visual determination of rock types and deleterious material in coarse aggregates.
2. **Apparatus.** The apparatus will be as follows:
 - A. Binocular microscope.
 - B. Dilute hydrochloric acid
 - C. Scale accurate to plus or minus 0.1 gram
 - D. Geology or mason hammer, or other cracking implement, and a steel striking plate
 - E. Penknife, screwdriver, or similar scratching device.
3. **Petrographer.** The examiner will have a degree in geology or will be a trained technician with a general background in geology and a specific background in petrology.
4. **Sample Preparation.** A sample of approximately 16 kilograms will be split and screened to produce a representative sample of 300 grams of plus No. 4 material for aggregate sizes No. 3 through No. 5, 1000 grams of plus No. 4 material for aggregate sizes No. 56 through No. 68, and 500 grams of plus No. 8 material for aggregate sizes No. 7 through No. 9. The samples will then be washed to remove any coating which would make particle examination difficult.
5. **Procedure.** The prepared sample will be divided into rock types as defined in ASTM c 294. This will be done by visual examination with the aid of the binocular microscope, dilute HCl, and cracking and scratching implements. The resulting groups will be weighed to the nearest gram and calculated as a percent of the whole.

Deleterious material samples will be examined for weathered and leached, porous, friable, fractured, altered or otherwise unsound particles. Pieces affected by such conditions to the degree that their performance may be impaired will be sorted out, weighed and calculated as a percent of the whole.

Since this is a subjective determination, the following guidelines will be used in determining if particles are weathered and unsound:

- A. Can be broken into several pieces by a light hammer tap.
- B. Show more than superficial oxidation or alteration of feldspars.
- C. Are visibly porous.
- D. Show numerous microfractures or cleavage planes.
- E. Are of abnormal coloration.

Particles which are as outlined above should be considered worthy of close examination.

6. **Report.** Report will contain the percentage by weight of individual rock types, as defined in ASTM C 294, and percentage by weight of deleterious material which will be reported as weathered and unsound.

A-5 DETERMINATION OF PERCENTAGE OF ADHERENT FINES PRESENT IN COARSE AGGREGATE

1. **Scope.** This method of test is used to determine the percentage of adherent fines present in coarse aggregates.
2. **Apparatus.** The apparatus will be in accordance with AASHTO T 11.
3. **Sample.** The sample for the test will conform to AASHTO T 11.

4. **Procedure.** The test sample will be dried to constant mass at a temperature of 230 plus or minus 9 degrees f and weighed to the nearest 0.1 percent. The sample will be sieved, for a period not to exceed 1 minute, over a No. 16 sieve. The material passing the No. 16 sieve will be considered non-adherent fines. The remaining material will then be tested in accordance with AASHTO T 11 and that material determined to be finer than the No. 200 sieve will be considered adherent fines.
5. **Report.** The report will include the amount of non-adherent fines computed as a percentage of the total mass of the sample and the amount of adherent fines computed as a percentage of the total mass of the sample.

A-6 SHALE, SCHIST, SLATE AND SOFT AND DECOMPOSED PARTICLES IN SOIL AGGREGATE

1. **Scope.** This method of test is used to determine the percentage of shale, schist, slate, and soft and decomposed particles in soil aggregate.
2. **Apparatus.** The apparatus will be in accordance with AASHTO T 27 and the following:
 - A. The drying oven will be of the forced convection type capable of maintaining a temperature of 230 plus or minus 9 degrees F.
 - B. The brass rod will be in accordance with AASHTO T 189.
 - C. The reading glass will be 4x, mounted on a suitable stand.
3. **Sample.** Sample for test will weigh, after drying, not less than 2500 grams nor more than 3500 grams obtained by use of a sample splitter or the quartering method.
4. **Procedure.**
 - A. Gradation. The sample will be separated by use of 2 inch, 3/4 inch, 3/8 inch and No. 200 sieves and the particle size distribution determined in accordance with AASHTO t 27.
 - B. Determination of shale, schist, slate, and soft and decomposed particles. The portions of the sample passing the 5 inch and retained on the 3/4 inch, and passing the 3/4 inch sieve and retained on the 3/8 inch sieve will be examined for shale, schist, slate, and soft and decomposed particles by:
 - A. The scratch hardness test in accordance with AASHTO T 189.
 - B. Lithological examination.
 - C. Combination of scratch hardness test and lithological examination.
 - C. Separation and weighing. Particles determined to be shale, schist, slate, and soft and decomposed particles in accordance with d.2 above will be separated from their respective sample fractions and weighed.
5. **Calculation and report.** The report will include the following:
 - A. The percent of particle distribution as determined in 4(a) above for the entire sample.
 - B. Percentage of shale, schist, slate, and soft and decomposed particles for each size larger than the 3/8 inch sieve as determined by the above procedure.
 - C. Total weighted percent of shale, schist, slate, and soft and decomposed particles, for the entire sample. For the purpose of calculating the test results, the material finer than the 3/8 inch sieve will be considered to contain the same percentage of shale, schist, slate, and soft and decomposed particles as the next larger size.

A-8 SCRATCH HARDNESS TEST FOR COARSE AGGREGATE PARTICLES

1. **Scope.** This method of test is used to determine the quantity of soft particles in coarse aggregates on the basis of scratch hardness. It is intended to be used to identify materials that are soft including those which are so poorly bonded that the separate particles in the piece are easily detached from the mass. The test is not intended to identify other types of deleterious materials which may be designated separately in the specifications.

The scratch test should be made on a freshly broken surface of the aggregate particle. If the particle contains more than one type of rock and is partly hard and partly soft, it should be classified as soft only if the soft portion is one third or more of the volume of the particle.

The scratch hardness test may be made on the exposed surface of an article provided consideration is given to softening of the surface due to weathering. A particle with a thin, soft and weathered surface and a hard core should normally be classed as "soft".

2. **Apparatus.** Apparatus will be a brass rod, 1/16 inch in diameter, with a rounded point, mounted in a device so that a load of 2 plus or minus 0.1 pounds is applied to the specimen tested. The brass rod will be of suitable hardness so that when filed to a sharp point, it will scratch a copper penny (u.s. Lincoln design), but fail to scratch a nickel (U.S.. Jefferson design). For use in the field, the brass rod of the specified size and hardness may be mounted into the wooden shaft of an ordinary lead pencil. A suitable design for the scratch hardness apparatus is on file in the department laboratory.
3. **Preparation Of Sample.** Coarse aggregate for the test will consist of material from which the sizes finer than the 3/8 inch sieve have been removed. The sample tested will be of such size that it will yield not less than the amounts of the different sizes prescribed in table 1 below which will be available in amounts of 10 percent or more.

**TABLE 1
MINIMUM SIZE OF SAMPLE TO BE TESTED
(SQUARE OPENING SIEVES)**

SIEVE SIZE

INCHES	MILLIMETER	SAMPLE MASS GRAMS
3/8 TO 1/2	9.5 TO 12.5	200
1/2 TO 3/4	12.5 TO 19.0	600
3/4 TO 1	19.0 TO 25.0	1500
1 TO 1 1/2	25.0 TO 37.5	4500
1 1/2 TO 2	37.5 TO 50.0	12000

Should the sample contain less than 10 percent of any of the sizes prescribed in table 1 above, that size will not be tested but, for the purpose of calculating the test results, it will be considered as containing the same percentage of soft particles as the average of the next larger and the next smaller size or, if one of these sizes is absent, it will be considered to have the same loss as the next larger or next smaller size, whichever is present.

The above requirements cover aggregates composed of a mixture of different types of rock. When the aggregate is composed of only one type of rock, the weight of the sample tested may be reduced to an amount considered appropriate by the engineer.

4. **Procedure.** Subject each particle of aggregate under test to a scratching motion of the brass rod, using a pressure of 2 pounds. Particles are considered to be soft if, during the scratching process, a groove is made in them without deposition of metal from the brass rod, or if separate particles are detached from the rock mass.
5. **Calculation and report.** The report will include the following:

- A. Mass and number of particles of each size of each sample tested with the brass rod.
- B. Mass and number of particles of each size of each sample classified as soft in the test.
- C. Percentage of test sample classified as soft by mass and by number of particles, and
- D. Weighted average percentage of soft particles calculated from percentages in subpart e.3. Above and based on the grading of the sample of aggregate received for examination or, preferably, the average grading of the material from that portion of the supply of which the sample is representative. In these calculations, sizes finer than the 3/8 inch sieve will not be included.

B-1 DETERMINATION OF ASPHALT CONTENT OF INVERTED EMULSIFIED ASPHALT

1. **Scope.** This method of test is used to determine the asphalt content of inverted emulsified asphalt.

The inverted emulsified asphalt first will be dehydrated and then distilled in accordance with AASHTO T 78.

2. **Apparatus.** The apparatus will consist of a 1-liter glass beaker and distillation apparatus in accordance with AASHTO T 78.
3. **Procedure.** Weigh 200 grams of the material into a tared 1-liter glass beaker. Heat, with constant stirring, to a temperature of 350 degrees F. This temperature will be attained within 20 to 30 minutes. Weigh the residue.

Weigh 150 grams of the dehydrated material into a tared flask and distill in accordance with the method prescribed above. Weigh the residue in the 8 ounce tin box and also the emptied distillation flask. When the dehydration does not yield sufficient residue for 150 gram distillation charge, or when such residue foams excessively in the flask on distillation, an approximate charge of 125 grams may be used.

The asphalt content, percent by weight, will be calculated according to the following formula:

$$\text{PERCENT ASPHALT CONTENT} = \frac{A \times (B+C)}{D}$$

Where A = Weight in grams of residue in beaker after open evaporation to 177 degrees C.

B = Weight in grams of residue in 227 gram tin box.

C = Weight in grams of residue in distillation flask.

D = Weight in grams of residue from open evaporation taken for distillation test. This weight is normally 150 grams as specified above.

B-2 METHOD OF SAMPLING HMA MIXTURES

1. **Scope.** This method is used at the plant to sample bituminous mixtures for Marshall stability tests and acceptance extraction tests.
2. **Apparatus.** The apparatus will be as follows:
 - A. Table of random numbers.
 - B. Scoop to make furrow and to dig material from the furrow in the pile of bituminous mixture.
3. **Procedure.** The samples for extraction and stability testing will be from trucks at the plant, by the department's plant inspector.

The rates of sampling will be applied to the plant's production for all department projects rather than individual projects.

The plant's production will be divided into successive parts or lots of the size specified for the mixture being sampled. Five samples to be tested for stability and five samples to be used for extraction testing will be taken from each lot.

The department's plant inspector will assign consecutive lot numbers for each type of mix at the plant. The producer will include the assigned lot identification number on each weigh ticket.

A table of random numbers will be used by the department to make random selection as to which ton of mix and thus from which truckload each sample will be taken.

The following method will be used to obtain samples from the designated truckloads of material:

From one of the conical piles of mixture within the truck, a furrow 3 to 6 inches in depth will be dug extending from the top to the bottom of the pile. The furrow will be prepared within either the front or the rear half of the truck. A coin will be flipped to determine which half of the truck is to be used: heads front half, tails rear half. The furrow will follow the slope of the pile and be formed as near to its center as possible. Sampling in areas between piles will be avoided because of possible segregation.

Scoops of approximately equal volumes of material will be dug from the furrow, representing the top third, center third and bottom third of the pile. The sample will be a minimum of 28 pounds in weight.

The sample removed from the truck will be reduced as follows:

1. **Marshall Specimen:** From the container of material, the department's representative will take a sample to be molded into one specimen for the Marshall stability test, taking care to ensure that the temperature of the mixture does not fall below that specified for molding.

During the production of the first lot of each mix supplied and for each succeeding fourth lot (1, 5, 9, etc.), the department's representative will mold three Marshall specimens in addition to those molded for stability tests. The specimens will be submitted to the department laboratory for verification of the mix properties.

2. **Extraction Sample:** Following the removal of material for the marshall specimen, the remaining material will be re-mixed. The department's representative will then take a 1000 plus gram sample from the re-mixed material for the acceptance test. From the remaining material, a comparison sample of approximately 5 pounds will be wrapped, sealed and labeled.

In the event of a situation whereby the test results will not be valid because of human or mechanical failure, the comparison sample will be tested and used in place of the initial acceptance sample.

The comparison sample is to be stored at the plant so it will be available for selection by department personnel if required.

Prior to and after each re-mixing and quartering, all tools will be cleaned to prevent the build-up of asphalt and fines. The cleaning during the re-mixing and quartering operations will be accomplished without solvents.

All samples forwarded for comparison testing must be identified as to their lot number and position in the lot's sampling sequence. For this purpose, an identification code, consisting of a number followed by a letter, will be used with each sample. The number portion of the code will be the number of the lot from which the sample was taken. The letter portion will indicate where the sample fits into the lot's sampling sequence. The letter A will be used to indicate the first sample of the lot, the letter B for the second sample, the letter C for the third, and so forth. When several samples (extractions and/or stability) come from the same truckload of mix, each of these samples will have the same identification code (number and letter).

B-3 LABORATORY ANALYSIS OF HMA

QUANTITATIVE EXTRACTION OF BITUMEN

1. **Scope.** This method of test is used for the quantitative determination of bitumen in paving mixtures and pavement samples. The bitumen content is calculated by difference from the weight of the extracted aggregate, moisture content and weight of ash in extract. As an alternate, AASHTO t 164, method a may be used except that the moisture content will be determined in accordance with subsection 903.02 as required, and the use of a steam bath for the ash determination is not required. A balance conforming to AASHTO m 231, class C may be used to determine the weight of the ash.
2. **Apparatus.** The apparatus will consist of the following:
 - A. Oven, capable of maintaining temperature at 280 plus or minus 5 degrees F.
 - B. Pan, 12 inch diameter.
 - C. Balance, capable of weighing 2000 grams to an accuracy of 0.2 gram.
 - D. Hot plate, electric, 3.6 kilowatt, low, medium, and high setting.
 - E. Small mouth graduate, 1000 milliliter capacity.
 - F. Test tube, 100 milliliter capacity.
 - G. Desiccator.
 - H. Analytical balance.
 - I. Centrifugal extraction apparatus, consisting of a bowl capacity 1300 grams) and an apparatus in which the bowl may be revolved up to a speed of 3600 rpm. The apparatus will be provided with a container for catching the solvent thrown from the bowl and a drain for removing the solvent. The apparatus will be provided with explosion-proof features installed in a hood to provide ventilation. Filter rings, to fit the rim of the bowl.
 - K. Reagent, inhibited solvent trichloroethylene.
 - L. Centrifuge, capable of rotating 100 millimeter test tubes at 1500 rpm.
 - M. Torque wrench calibrated in newton meters with a minimum capacity of 110 inch pounds.
3. **Procedure.** Random weight samples of 1000 grams plus are to be used for extraction. If the sample has cooled to ambient temperature, It will heated at 280 degree f for a minimum of 30 minutes. Samples taken at the batch plant which are still hot may be processed immediately.

The sample will be weighed to the nearest 0.1 gram and transferred into the bowl.

The sample will be covered in the bowl with solvent and sufficient time allowed for the solvent to disintegrate the sample (not over 1 hour). The bowl containing the sample and the solvent will be placed in the extraction apparatus. The filter ring will be dried, weighed, and fitted around the edge of the bowl. The cover will be clamped on the bowl tightly with a torque wrench to 110 inch pounds. A beaker will be placed under the drain to collect the extract.

The centrifuge will be revolved until the solvent ceases to flow from the drain. The machine will be allowed to stop, 200 to 250 milliliters of solvent will be added, and this procedure repeated twice more. The extract and the washings will be collected in a suitable graduate. Sufficient solvent additions will be used, as required, to produce an extract that is clear and not darker than a light straw color.

The filter ring will be removed from the bowl and dried. As much as possible of the mineral matter adhering to the ring will be removed and added to the aggregate. The ring and contents of the bowl will be dried to constant weight in an oven at 280 degrees F

The volume of the total extract in the graduate will be recorded. The extract will be agitated thoroughly and 75 milliliters immediately measured out and poured into a previously weighed test tube. The test tube will be placed in a centrifuge and revolved at 1500 rpm for sixty minutes. The extract will be decanted and approximately 25 milliliter of clean solvent added to the test tube. The residue will be dislodged and stirred with a spatula. The test tube will be filled with solvent, cleaning the spatula, and placed back in the centrifuge for thirty minutes. The rinsing process will be repeated a second time

and the test tube placed back in the centrifuge for thirty minutes. The test tube shall be repeated until solvent remains clean. The test tube will be decanted and placed in an oven until dry, then cooled in a desiccator and weighed. A minimum of one determination of fines in the extract will be done on each lot of material.

Centrifuge fines in the extract will be calculated as follows:

$$\text{WEIGHT OF FINES IN EXTRACT} = \frac{AB}{75}$$

WHERE: A = TOTAL AMOUNT OF EXTRACT
B = AMOUNT OF MATERIAL IN TUBE

CONVERT TO ASH AS FOLLOWS:

$$Y = 1.0338X + 1.0488$$

WHERE: Y = WEIGHT OF ASH IN EXTRACT
X = WEIGHT OF CENTRIFUGE FINES IN EXTRACT

CALCULATE PERCENTAGE OF BITUMEN IN THE SAMPLE AS FOLLOWS:

$$\text{PERCENT ASPHALT CEMENT} = \frac{(W1+W2) - (W3+W4+W5)}{W1} \times 100$$

WHERE: W1 = WEIGHT OF SAMPLE
W2 = WEIGHT OF RING
W3 = WEIGHT OF AGGREGATE
W4 = WEIGHT OF RING AFTER CENTRIFUGING
W5 = WEIGHT OF FINES IN EXTRACT

A minimum of one sample per lot but not less than two samples per day will be tested for moisture. The amount of moisture in the mixture can be compensated for by using the equation listed in AASHTO T 164, method A, or by mathematically calculating the sample dry weight by dividing the wet weight by one plus the moisture content. The most recent moisture content for each mix will be used. Samples for moisture determination will be obtained.

The percentage of bitumen will be determined to the nearest 0.01 of a percent. This will be rounded to the nearest 0.05 percent. The rounding procedure will be in accordance with ASTM E 29.

MECHANICAL ANALYSIS OF EXTRACTED AGGREGATE

1. **Scope.** This method is used to determine the particle size distribution of fine and coarse aggregates extracted from bituminous mixtures, using sieves with square openings.
2. **Apparatus.** The apparatus will be as follows:
 - A. Balance or scale sensitive to within 0.2 gram.
 - B. Sieves with square openings, mounted on substantial frames constructed in a manner that will prevent loss of material during sieving. Suitable sieve sizes will be selected to furnish the information required by the specifications covering the material to be tested. The woven wire cloth sieves will conform to the specifications for sieves for testing purposes in AASHTO M 92.
3. **Sample.** The sample will consist of the entire amount of mineral aggregate from which the bituminous material has been extracted.

4. **Procedure.** The test sample will be dried to a constant weight and weighed. The weight of mineral matter contained in the extracted bitumen will be determined and this weight added to the weight of the sample under test.

After being dried and weighed, the test sample will be placed over proper sieves decreasing in size down to the No. 10 or No. 8 sieve with a catch pan under them. The sieving operation will be conducted by means of lateral and vertical motion of the sieve. In no case will fragments in the sample be turned or manipulated through the sieve by hand. Sieving will be continued until not more than 1 percent by weight of the residue passes any sieve during 1 minute.

The fine aggregate in the catch pan will be weighed and recorded. The aggregate will then be placed in a large pan and covered with water which contains a wetting agent (joy, calgon or other suitable product) and agitated vigorously and the wash water immediately poured over a nest of two sieves consisting of a 2.00 or 1.18 millimeter sieve superimposed over a No. 200 sieve.

The agitation will be sufficiently vigorous to result in a complete separation of the coarse particles from particles finer than the No. 200 sieve, and bring them into suspension in order that they may be removed by decantation of the wash water. Care will be taken to avoid decantation of the coarse particles. The operation will be repeated until the wash water is clear.

All materials retained on the nested sieves will be returned to the container. The washed aggregate will be dried to constant weight at a temperature 230 +/- 9 degrees f and weighed to the nearest 0.1 percent.

If the amount of material passing the No. 200 sieve fails to meet the minimum requirement for the sample under test, the coarse aggregate of the particular sample must also be washed over a No. 200 sieve. The minute amount of fines washed from the coarse aggregate will then be added to the passing No. 200 sieve material washed from the fine aggregate portion of the sample.

The dried material will then be placed over a set of proper sieves including the No. 200 sieve. It will be agitated mechanically for five minutes.

The weight of material passing each sieve and retained on the next and the amount passing the No. 200 sieve will be recorded. The weight of dry material passing the No. 200 sieve by dry sieving will be added to the weight of mineral matter in the bitumen, in the ring and the weight removed by washing in order to obtain the total passing the No. No. 200 sieve.

5. **Report.** The results of the sieve analysis will be reported as follows:

1. The total percentage passing each sieve will be determined to the nearest 0.1 percent when reported on the work sheet and daily inspection report. When recorded on the lot data report, results for the No. 8 sieve will be rounded to the nearest 0.5 percent. The No. 200 sieve will be reported to the nearest 0.1 percent and all other sieves will be reported to the nearest whole percent.
2. The rounding procedure will be in accordance with ASTM E 29.

B-5 DETERMINING CONFORMANCE OF HMA MIXTURE FOR FULLY AUTOMATED PLANTS USING HOT BIN SAMPLES AND BATCH WEIGHT PRINTOUTS

1. **Scope.** This method is used to determine the gradation and asphalt content of a bituminous concrete mixture by use of bin samples and printout ticket.
2. **Apparatus.** Apparatus for coarse and fine aggregate will conform to AASHTO t 27 and apparatus for mineral filler will conform to AASHTO T 37.
3. **Procedure.** Under the supervision of the engineer, random samples of not less than 25 pounds shall be taken by the producer from each hot bin for each 600 tons batched. The bin samples shall be taken

during the loading of the truck from which the Marshall samples are selected. When mineral filler is used, a minimum of one filler sample shall be taken per lot.

The minimum sample weight for testing shall be 25 pounds for bins No. 5 and No. 4, 10 pounds for bin No. 3, and 2 pounds for bin No. 2. Minimum test sample weight for bin No. 1 shall be 500 grams, and for mineral filler 100 grams.

Test samples from bins No. 2, 3, 4 and 5, after being weighed, will be placed over proper sieves decreasing in size down to the No. 8 with a catch pan underneath. The sieving operation will be conducted by means of a mechanical sieve shaker. The material passing the No. 8 sieve will be washed and graded using the procedure hereinafter described for bin No. 1.

The bin No. 1 material will be weighed and recorded, then washed through a No. 200 mesh sieve. The sample will be carefully agitated during this washing operation resulting in the minus No. 200 material being removed by the washing medium.

The washed material will be thoroughly dried and weighed, then placed over the proper sieves, decreasing in size down to the No. 200 sieve with a catch pan underneath. It will be agitated mechanically for 5 minutes.

The amount of material passing each sieve and retained on the next and the amount passing the No. 200 sieve will be recorded. The weight of dry material passing the No. 200 sieve and the weight removed by washing will be added together in order to obtain the total passing the No. 200.

The mineral filler sample is to be washed over a No. 200 sieve using inhibited solvent trichloroethylene or in accordance with AASHTO T 37.

4. **Report.** The percent of material from each bin will be determined by dividing the recorded delivery ticket weights for each bin by the total aggregate weight of the load.

The mix gradation will be determined by computing the percentage of material passing each sieve for each bin, and multiplying the percentage by each bin percentage determined above and then summing the products.

The asphalt content will be determined by dividing the recorded delivery ticket asphalt cement weight for the load by the total load weight. Percentages will be reported to the nearest 0.01 percent on the work sheet and the daily inspection report and rounded to the nearest 0.05 percent when reported on the lot data report.

Bin percentages and bin gradations will be determined to the nearest 0.1 percent when reported on the work sheet and daily inspection report. When recorded on the lot data report, results for the No. 8 sieve will be rounded to the nearest 0.5 percent. Results for the No. 200 sieve will be reported to the nearest 0.1 percent and all other sieves will be reported to the nearest whole percent.

THE ROUNDING PROCEDURE WILL BE IN ACCORDANCE WITH ASTM E 29.

B-8 BULK SPECIFIC GRAVITY OF COMPACTED HMA

1. **Scope.** This method of test is used to determine the bulk specific gravity of specimens of compacted bituminous mixtures as defined in AASHTO M 132. The bulk specific gravity of the compacted bituminous mixture may be used in calculating the unit weight of the mixture.
2. **Test specimens.** Test specimens may be taken either from laboratory-molded bituminous mixtures or from field samples of bituminous mixtures.

The recommended thickness of specimens should be at least one and one-half times the maximum size of the aggregate.

Field samples will be taken with a core drill, diamond or carborundum saw, or by other suitable means. Care will be taken to avoid distortion, bending, or cracking of specimens during and after removal. Specimens will be stored in a safe, cool place.

Specimens may be separated from other pavement layers by sawing or other suitable means.

Specimens will be free from foreign materials such as tack coat, foundation material, soil, paper or foil.

3. **Apparatus.** The apparatus will be as follows:

- A. Balance will conform to AASHTO M 231 for the class of balance required for the weight of the principal sample being tested. The balance will be equipped with suitable suspension apparatus and holder to permit weighing the specimen while suspended from the center of scale pan of balance. The holder should be immersed to a depth sufficient to cover it and the test sample during weighing. Wire suspending the holder should be the smallest practical size to minimize any possible effects of a variable immersed length.
- B. Water bath for immersing the specimen in water while suspended under the balance will be equipped with an overflow outlet for maintaining a constant water level.

4. **Procedure.** Dry the specimen by allowing it to remain undisturbed at room temperature, 77 +/- 10 degrees f, for at least 12 hours. A fan may be used to aid drying if needed. After the specimen is dry or cooled to room temperature, record the dry mass (a). Immerse each specimen in water at 77 +/- 10 degrees f until all visible bubbling has ceased and record the immersed mass under "C". Remove the specimen from the water, surface dry by blotting with a damp towel, and determine the surface-dry mass "B". If desired, the sequence of testing operations may be changed to expedite the test results. For example, first the weight of the immersed mass "C" can be determined, then the surface-dry mass "B" and finally the dry mass "A".

5. **Calculation.** Calculate the bulk specific gravity of the specimen as follows:

$$\text{BULK SPECIFIC GRAVITY} = \frac{A}{B - C}$$

WHERE A = MASS IN GRAMS OF SAMPLE IN AIR
B = MASS IN GRAMS OF SURFACE-DRY SPECIMEN IN AIR
C = MASS IN GRAMS OF SAMPLE IN WATER

6. **Report.** The bulk specific gravity shall be reported to the nearest 0.001.

4.0 PROPOSAL PREPARATION AND SUBMISSION

4.1 GENERAL

The bidder must follow instructions contained in this RFP and on the bid cover sheet in preparing and submitting its bid proposal. The bidder is advised to thoroughly read and follow all instructions.

The first page (face) of this RFP shall be signed by an authorized representative of the bidder. However, if the bidder is a limited partnership, the first page (face) of this RFP must be signed by a general partner. If the bidder is a joint venture, the first page (face) of this RFP must be signed by a principal of each party to the joint venture. Failure to comply will result in rejection of the bid proposal.

Pricing and information sheets must be completed in their entirety. Failure to comply with this requirement may result in rejection of the bid proposal.

No changes or white outs will be permitted on the specification sheets, unless each change is initialed and dated in ink by the bidder.

Exact mileage from plant to reference location - for each line item that is for agency pickup, the bidder is to furnish exact mileage from the location of the closest plant to the referenced D.O.T location. The state reserves the right to verify exact mileage as submitted by the bidder. Discrepancies in the exact mileage may subject the bidder to bid rejection. The latest copy of the State of New Jersey official transportation map and guide will be used for verification.

4.2 PROPOSAL DELIVERY AND IDENTIFICATION

In order to be considered, a bid proposal must arrive at the Purchase Bureau in accordance with the instructions on the RFP cover sheet. Bidders are cautioned to allow adequate delivery time to ensure timely delivery of bid proposals. State regulation mandates that late bid proposals are ineligible for consideration. **THE EXTERIOR OF ALL BID PROPOSAL PACKAGES MUST BE LABELED WITH THE BID IDENTIFICATION NUMBER, FINAL BID OPENING DATE AND THE BUYER'S NAME.** (See RFP cover sheet).

4.3 NUMBER OF BID PROPOSAL COPIES

Each bidder must submit **one (1) complete ORIGINAL bid proposal**, clearly marked as the "ORIGINAL" bid proposal. Each bidder should submit **two (2) full, complete and exact copies** of the original. The copies requested are necessary in the evaluation of the bid proposal. Bidders failing to provide the requested number of copies will be charged the cost incurred by the State in producing the requested number of copies. It is suggested that the bidder make and retain a copy of its bid proposal.

4.4 PROPOSAL CONTENT

The bid proposal should be submitted as follows:

- Forms (Section 4.4.1)

CONTENTS	RFP SECTION REFERENCE	COMMENTS
Forms	Cover sheet	Completed and signed cover sheet (Page 3 of this RFP)
	4.4.1.1	Ownership Disclosure Form (Attachment 1)
	4.4.1.2	MacBride Principles Certification (Attachment 2)
	4.4.1.3	Affirmative Action Employee Information Report or New Jersey Affirmative Action Certificate (Attachment 3)
	Appendix 1 - 1.1 of the Standard Terms & Conditions	Business Registration from Division of Revenue

4.4.1 FORMS

4.4.1.1 OWNERSHIP DISCLOSURE FORM

In the event the bidder is a corporation or partnership, the bidder must complete the attached Ownership Disclosure Form. A completed Ownership Disclosure Form must be received prior to or accompany the bid proposal. Failure to do so will preclude the award of a contract.

The Ownership Disclosure Form is attached as [Attachment 1](#) to this RFP.

4.4.1.2 MACBRIDE PRINCIPLES CERTIFICATION

The bidder must complete the attached MacBride Principles Certification evidencing compliance with the MacBride Principles. Failure to do so may result in the award of the contract to another vendor.

The MacBride Principles Certification Form is attached as [Attachment 2](#) to this RFP

4.4.1.3 AFFIRMATIVE ACTION

The bidder must complete the attached Affirmative Action Employee Information Report, or, in the alternative, supply either a New Jersey Affirmative Action Certificate or evidence that the bidder is operating under a Federally approved or sanctioned affirmative action program. The requirement is a precondition to entering into a State contract.

The Affirmative Action Forms are attached as [Attachment 3](#) to this RFP

4.4.1.4 RESERVED

4.4.2 SUBMITTALS

In addition to the above requirements, all bidders are encouraged to submit their price list(s) in the form of a CD in PDF or text format. However, the preprinted hard copy paper price list must be included with the bid proposal.

NOTE: The State may upload the CD to the internet in order to facilitate user ordering from the contract. If the CD is uploaded, the contractor will NOT have to provide the Using Agency with a hard copy of the preprinted price list(s), and the contractor will not have to verify pricing and/or products.

4.4.2.1 RESERVED

4.4.2.2 BIDDER DATA SHEET

The bidder must provide all of the information requested. The bidder may provide its response on a separate attachment but should clearly note here that it is doing so:

1. Name of individual that may be contacted at all times if information, service, or problem solving is required by the Using Agency. This service shall be available at no additional charge.

(PLEASE PRINT OR TYPE)

Name: _____

Address: _____

City, State: _____

Telephone Number: _____ Fax Number: _____

2. Years of this individual's experience in servicing similar accounts: _____

3. Identify the similar accounts this individual has serviced:

4.4.2.3 REFERENCE DATA SHEETS - SATISFACTORY CUSTOMER SERVICE

The bidder must provide all of the information requested. The bidder may provide its response on a separate attachment but should clearly state here that it is doing so:

Supply the name(s) of present customers you are servicing for contracts of a similar size and scope to those required by this RFP. The State reserves the right to visit these locations and verify production.

1. Name of customer provided as reference: _____

Name of individual State may contact to verify reference:

1st individual: _____ Phone # of contact person: _____

2nd individual: _____ Phone # of contact person: _____

Length of time services provided by the bidder to this customer: _____

2. Name of customer provided as reference:

1st individual: _____ Phone # of contact person: _____

2nd individual: _____ Phone # of contact person: _____

Length of time services provided by the bidder to this customer: _____

3. Name of customer provided as reference

1st individual: _____ Phone # of contact person: _____

2nd individual: _____ Phone # of contact person: _____

Length of time services provided by the bidder to this customer: _____

4.4.2.4 MANDATORY CONTRACTOR DATA SHEET - TERMINATED CONTRACTS

The bidder must provide all of the information requested. The bidder may provide its response on a separate attachment but should clearly state here that it is doing so:

Provide a list of contracts, if any, your firm has been terminated from during the last three years along with the reason that your contract was terminated.

1. Name of Firm:_____

Contact Person:_____

Phone Number:_____

Reason for Termination:_____

2. Name of Firm:_____

Contact Person:_____

Phone Number:_____

Reason for Termination:_____

3. Name of Firm:_____

Contact Person:_____

Phone Number:_____

Reason for Termination:_____

4.4.2.5 RESERVED

4.4.2.6 FINANCIAL CAPABILITY OF THE BIDDER

If requested the bidder shall provide proof of its financial capacity and capabilities to undertake and successfully complete the contract. To satisfy this requirement, the bidder shall submit a certified financial statement, including applicable notes, reflecting the bidder's assets, liabilities, net worth, revenues, expense, profit or loss and cash flow for the most recent calendar year or the bidder's most recent fiscal year; or if a certified financial statement is not available, then either a reviewed or compiled

statement from an independent accountant setting forth the same information required for the certified financial statement. In addition, the bidder must submit a bank reference.

4.4.3 COST PROPOSAL

The bidder must submit its pricing using the State supplied price sheet(s) attached to this RFP. Failure to submit all information required will result in the bid being considered non-responsive. Each bidder is required to hold its prices firm through issuance of contract.

4.4.4 METHOD OF BIDDING

4.4.4.1 Bidders are required to fill in all of the information requested in the bid sheets attached to this RFP. Failure to do so may make it impossible for the state to evaluate your proposal, thereby resulting in rejection of your bid.

4.4.4.2 Bidders will supply their prices on the price lines at the end of the technical specifications.

4.4.4.3 In an event of conflicting unit and total prices, the unit price shall prevail.

4.4.4.4 Exact mileage from plant to reference location - for each line item that is for delivery, the bidder is to furnish exact mileage from the location of the closest plant to the referenced D.O.T location. The state reserves the right to verify exact mileage as submitted by the bidder. Discrepancies in the exact mileage may subject the bidder to bid rejection. The latest copy of the State of New Jersey official transportation map and guide will be used for verification.

4.4.4.5 Failure to provide the address of the bidder's plant location and exact mileage will render your bid for that item non-responsive and subject to rejection. This vital information is to be provided as indicated on the pricing pages.

5.0 SPECIAL CONTRACTUAL TERMS AND CONDITIONS

5.1 PRECEDENCE OF SPECIAL CONTRACTUAL TERMS AND CONDITIONS

The contract awarded as a result of this RFP shall consist of this RFP, addendum to this RFP, the contractor's bid proposal and the Division's Notice of Award.

Unless specifically stated within this RFP, the Special Contractual Terms and Conditions of the RFP take precedence over the Standard Terms and Conditions [Appendix 1](#) of the RFP.

In the event of a conflict between the provisions of this RFP, including the Special Contractual Terms and Conditions and the Standard Terms and Conditions, and any Addendum to this RFP, the Addendum shall govern.

In the event of a conflict between the provisions of this RFP, including any Addendum to this RFP, and the bidder's bid proposal, the RFP and/or the Addendum shall govern.

5.2 BUSINESS REGISTRATION

See Standard Terms & Conditions, [Appendix 1, Section 1.1](#).

5.3 CONTRACT TERM AND EXTENSION OPTION

The term of the contract shall be for a period of **10 (ten) months**. The anticipated "Contract Effective Date" is provided on the cover sheet of this RFP. If delays in the procurement process result in a change to the anticipated Contract Effective Date, the bidder agrees to accept a contract for the full term of the contract. The contract may be extended for all or part of **one (1) year** by the mutual written consent of the contractor and the Director.

5.4 CONTRACT TRANSITION

In the event that a new contract has not been awarded prior to the contract expiration date, as may be extended herein, it shall be incumbent upon the contractor to continue the contract under the same terms and conditions until a new contract can be completely operational. At no time shall this transition period extend more than **ninety (90)** days beyond the expiration date of the contract.

5.5 AVAILABILITY OF FUNDS

The State's obligation to pay the contractor is contingent upon the availability of appropriated funds from which payment for contract purposes is made. No legal liability on the part of the State for payment of any money shall arise unless funds are made available each fiscal year to the Using Agency by the Legislature.

5.6 CONTRACT AMENDMENT

Any changes or modifications to the terms of the contract shall only be valid when they have been reduced to writing and signed by the contractor and the Director.

5.7 PROCEDURAL REQUIREMENTS AND AMENDMENTS

5.7.1 The contractor shall comply with procedural instructions that may be issued from time to time by the Director.

5.7.2 During the period of the contract, no contractual changes are permitted, unless approved in writing by the Director.

5.7.3 The State reserves the right to separately procure individual requirements that are the subject of the contract during the contract term, when deemed by the Director to be in the State's best interest.

5.8 ITEMS ORDERED AND DELIVERED

The **Using Agencies** are authorized to order and **the contractor is** authorized to ship only those items covered by the contracts resulting from this RFP. If a review of orders placed by the Using Agency [Agencies] reveals [reveal] that material other than that covered by the contract has been ordered and delivered, such delivery shall be a violation of the terms of the contract and may be considered by the Director in the termination of the contract or in the award of any subsequent contract. The Director may take such steps as are necessary to have the items returned by the Agency, regardless of the time between the date of delivery and discovery of the violation. In such event, the contractor shall reimburse the State the full purchase price.

The contract involves items which are necessary for the continuation of ongoing critical State services. Any delay in delivery of these items would disrupt State services and would force the State to immediately seek alternative sources of supply on an emergency basis. Timely delivery is critical to meeting the State's ongoing needs.

5.9 RESERVED

5.10 REMEDIES FOR NON-PERFORMANCE

In the event that the contractor fails to comply with any material contract requirements, the Director may take steps to terminate the contract in accordance with the State administrative code. In this event, the Director may authorize the delivery of contract items by any available means, with the difference between the price paid and the defaulting contractor's price either being deducted from any monies due the defaulting contractor or being an obligation owed the State by the defaulting contractor.

- 5.11 All products must conform in every respect to the standards and regulations established by Federal and New Jersey State laws.
- 5.12 All products shall be manufactured and packaged under modern sanitary conditions in accordance with good commercial practice.
- 5.13 All products are to be packaged in sizes as specified in this RFP and shall be packaged in such a manner as to insure delivery in first class condition and properly marked for identification. All shipments must be comprised of original cartons associated with the commercial industry represented by the actual product contained within each carton. Deliveries containing re-used, re-labeled, re-worked or alternate cartons are subject to rejection by the Using Agency at the contractor's expense.

5.14 RESERVED

5.15 CLAIMS

All claims asserted against the State by the contractor shall be subject to the New Jersey Tort Claims Act, N.J.S.A. 59:1-1.1, et seq., and/or the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1, et seq.

5.16 CONTRACT ACTIVITY REPORT

In conjunction with the standard record keeping requirements of this contract, as listed in paragraph 3.19 of this RFP's standard terms and conditions, the contractor must provide, on a QUARTERLY basis, to the Purchase Bureau buyer assigned, a record of all purchases made under its contract. This information must be provided in a tabular format such that an analysis can be made to determine the following:

- Contractor's total sales volume under contract, subtotaled by product.

Submission of purchase orders, confirmations, and/or invoices do not fulfill this contract requirement.

Contractors are encouraged to submit the required information in electronic spreadsheet format. The Purchase Bureau uses Microsoft Excel.

Failure to submit these mandated reports will be a factor in future award decisions.

6.0 PROPOSAL EVALUATION/CONTRACT AWARD

6.1 For a product bid that has been determined to be in compliance with this RFP, the contract shall be awarded on the basis of the following criteria, not necessarily listed in the order of importance:

6.1.1 Price

6.1.2 Experience of the bidder

6.1.3 Compliance with the terms and conditions of the bid proposal.

6.1.4 The bidder's past performance under similar contracts, including if applicable, the Division's vendor performance database.

6.1.5. Bidder's delivery of bituminous concrete-winter mix to the purchasing agency within two (2) days after receipt of order. This is a mandatory requirement and supersedes section 13 on the front page of this RFP entitled "Requested Delivery." Any delivery information provided by the bidder in section 16 on the front page of this RFP entitled "To Be Completed By Bidder", which exceeds the two (2) day time frame will be deemed an exception and evaluated accordingly.

6.2 ORAL PRESENTATION AND/OR CLARIFICATION OF BID PROPOSAL

After the submission of bid proposals, unless requested by the State, contact with the State is limited to status inquiries only and such inquiries are only to be directed to the buyer. Any further contact or information about the proposal to the buyer or any other State official connected with the solicitation will be considered an impermissible supplementation of the bidder's bid proposal.

A bidder may be required to give an oral presentation to the Evaluation Committee concerning its bid proposal. The Evaluation Committee may also require a bidder to submit written responses to questions regarding its bid proposal.

The purpose of such communication with a bidder, either through an oral presentation or a letter of clarification, is to provide an opportunity for the bidder to clarify or elaborate on its bid proposal. Original bid proposals submitted, however, cannot be supplemented, changed, or corrected in any way. No comments regarding other bid proposals are permitted. Bidders may not attend presentations made by their competitors.

It is within the Evaluation Committee's discretion whether to require a bidder to give an oral presentation or require a bidder to submit written responses to questions regarding its bid proposal. Action by the Evaluation Committee in this regard should not be construed to imply acceptance or rejection of a bid proposal. The Purchase Bureau buyer will be the sole point of contact regarding any request for an oral presentation or clarification.

6.3 FINAL AWARD

The state will be solely responsible for all contract(s) awarded for each of the participating agencies in this RFP

- 1) For pickup material: award will be made to the bidder submitting the lowest pick-up price within each county and meeting all bid specifications, Terms & Conditions.
- 2) For F.O.B delivered plant: the unit price per ton will be added together with the hauling costs to determine an "adjusted unit price per ton".

Hauling costs will be calculated at the rate of \$1.50 per the number of miles from the bidder's plant to the D.O.T. location used for each county.

6.4 One award shall be made per line item with reasonable promptness by written notice to that responsible bidder(s), whose bid proposal(s), conforming to this RFP, is(are) most advantageous to the State, price, and other factors considered. Any or all bid proposals may be rejected when the State Treasurer or the Director determines that it is in the public interest so to do.

7.0 ATTACHMENTS, SUPPLEMENTS AND APPENDICES

APPENDICES

1. [New Jersey Standard Terms and Conditions](#)

APPENDIX 1 NJ STATE STANDARD TERMS AND CONDITIONS

STATE OF NEW JERSEY STANDARD TERMS AND CONDITIONS

- I. Unless the bidder is specifically instructed otherwise In the Request for Proposal, the following terms and conditions will apply to all contracts or purchase agreements made with the State of New Jersey. These terms are in addition to the terms and conditions set forth in the Request for Proposal (RFP) and should be read in conjunction with same unless the RFP specifically indicates otherwise. If a bidder proposes changes or modifications or takes exception to any of the State's terms and conditions, the bidder must so state specifically in writing in the bid proposal. Any proposed change, modification or exception in the State's terms and conditions by a bidder will be a factor in the determination of an award of a contractor purchase agreement.
- II. All of the State's terms and conditions will become a part of any contract(s) or order(s) awarded as a result of the Request for Proposal, whether stated in part, in summary or by reference. In the event the bidder's terms and conditions conflict with the State's, the State's terms and conditions will prevail, unless the bidder is notified in writing of the State's acceptance of the bidder's terms and conditions.
- III. The statutes, laws or codes cited are available for review at the New Jersey State Library, 185 West State Street, Trenton, New Jersey 08625.
- IV. If awarded a contract or purchase agreement, the bidder's status shall be that of any independent principal and not as an employee of the State.

1. STATE LAW REQUIRING MANDATORY COMPLIANCE BY ALL CONTRACTORS

- 1.1 BUSINESS REGISTRATION** - All New Jersey and out of State Corporations must obtain a Business Registration Certificate (BRC) from the Department of the Treasury, Division of Revenue prior to conducting business in the State of New Jersey. Proof of valid business registration with the Division of Revenue, Department of the Treasury, State of New Jersey, should be submitted by the bidder and, if applicable, by every subcontractor of the bidder, with the bidder's bid. No contract will be awarded without proof of business registration with the Division of Revenue. Any questions in this regard can be directed to the Division of Revenue at (609) 292-1730. Form NJ-REG. can be filed online at <http://www.state.nj.us/treasury/revenue/gettingregistered.htm#busentity>
- 1.2 ANTI-DISCRIMINATION** - All parties to any contract with the State of New Jersey agree not to discriminate in employment and agree to abide by all anti-discrimination laws including those contained within N.J.S.A. 10:2-1 through N.J.S.A. 10:2-4, N.J.S.A.10:5-1 et seq. and N.J.S.A.10:5-31 through 10:5-38, and all rules and regulations issued there under.
- 1.3 PREVAILING WAGE ACT** - The New Jersey Prevailing Wage Act, N.J.S.A. 34: 11-56.26 et seq. is hereby made part of every contract entered into on behalf of the State of New Jersey through the Division of Purchase and Property, except those contracts which are not within the contemplation of the Act. The bidder's signature on this proposal is his guarantee that neither he nor any subcontractors he might employ to perform the work covered by this proposal has been suspended or debarred by the Commissioner, Department of Labor for violation of the provisions of the Prevailing Wage Act.
- 1.4 AMERICANS WITH DISABILITIES ACT** - The contractor must comply with all provisions of the Americans With Disabilities Act (ADA), P.L 101-336, in accordance with 42 U.S.C. 12101 et seq.
- 1.5 THE WORKER AND COMMUNITY RIGHT TO KNOW ACT** - The provisions of N.J.S.A. 34:5A-1 et seq. which require the labeling of all containers of hazardous substances are applicable to this contract. Therefore, all goods offered for purchase to the State must be labeled by the contractor in compliance with the provisions of the Act.
- 1.6 OWNERSHIP DISCLOSURE** - Contracts for any work, goods or services cannot be issued to any corporation or partnership unless prior to or at the time of bid submission the bidder has disclosed the names and addresses of all its owners holding 10% or more of the corporation or partnership's stock or interest. Refer to N.J.S.A. 52:25-24.2.
- 1.7 COMPLIANCE - LAWS** - The contractor must comply with all local, state and federal laws, rules and regulations applicable to this contract and to the goods delivered and/or services performed hereunder.
- 1.8 COMPLIANCE - STATE LAWS** - It is agreed and understood that any contracts and/or orders placed as a result of this proposal shall be governed and construed and the rights and obligations of the parties hereto shall be determined in accordance with the laws of the STATE OF NEW JERSEY.

1.9 COMPLIANCE - CODES - The contractor must comply with NJUCC and the latest NEC70, B.O.C.A. Basic Building code, OSHA and all applicable codes for this requirement. The contractor will be responsible for securing and paying all necessary permits, where applicable.

2. LIABILITIES

2.1 LIABILITY - COPYRIGHT - The contractor shall hold and save the State of New Jersey, its officers, agents, servants and employees, harmless from liability of any nature or kind for or on account of the use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article or appliance furnished or used in the performance of his contract.

2.2 INDEMNIFICATION - The contractor shall assume all risk of and responsibility for, and agrees to indemnify, defend, and save harmless the State of New Jersey and its employees from and against any and all claims, demands, suits, actions, recoveries, judgments and costs and expenses in connection therewith on account of the loss of life, property or injury or damage to the person, body or property of any person or persons whatsoever, which shall arise from or result directly or indirectly from the work and/or materials supplied under this contract. This indemnification obligation is not limited by, but is in addition to the insurance obligations contained in this agreement.

2.3 INSURANCE - The contractor shall secure and maintain in force for the term of the contract liability insurance as provided herein. The contractor shall provide the State of New Jersey with current certificates of insurance for all coverages and renewals thereof which must contain the proviso that the insurance provided in the certificate shall not be canceled for any reason except after thirty days written notice to:

STATE OF NEW JERSEY
Purchase Bureau - Bid Ref.#

The insurance to be provided by the contractor shall be as follows.

a. General liability policy as broad as the standard coverage forms currently in use in the State of New Jersey which shall not be circumscribed by any endorsements limiting the breadth of coverage. The policy shall be endorsed to include:

1. BROAD FORM COMPREHENSIVE GENERAL LIABILITY
2. PRODUCTS/COMPLETED OPERATIONS
3. PREMISES/OPERATIONS

The limits of liability for bodily injury and property damage shall not be less than \$1 million per occurrence as a combined single limit.

b. Automobile liability insurance which shall be written to cover any automobile used by the insured. Limits of liability for bodily injury and property damage shall not be less than \$1 million per occurrence as a combined single limit.

c. Worker's Compensation Insurance applicable to the laws of the State of New Jersey and Employers Liability Insurance with limits not less than

\$100,000 BODILY INJURY, EACH OCCURRENCE
\$100,000 DISEASE EACH EMPLOYEE
\$500,000 DISEASE AGGREGATE LIMIT

3. TERMS GOVERNING ALL PROPOSALS TO NEW JERSEY PURCHASE BUREAU

3.1 CONTRACT AMOUNT - The estimated amount of the contract(s), when stated on the Advertised Request for Proposal form, shall not be construed as either the maximum or minimum amount which the State shall be obliged to order as the result of this Request for Proposal or any contract entered into as a result of this Request for Proposal.

3.2 CONTRACT PERIOD AND EXTENSION OPTION - If, in the opinion of the Director of the Division of Purchase and Property, it is in the best interest of the State to extend a contract entered into as a result of this Request for Proposal, the contractor will be so notified of the Director's Intent at least 30 days prior to the expiration date of the existing contract. The contractor shall have 15 calendar days to respond to the Director's request to extend the contract. If the contractor agrees to the extension, all terms and conditions of the original contract, including price, will be applicable.

3.3 BID AND PERFORMANCE SECURITY

- a. Bid Security - If bid security is required, such security must be submitted with the bid in the amount listed in the Request for Proposal, see N.J.A.C. 17: 12- 2.4. Acceptable forms of bid security are as follows:
 1. A properly executed individual or annual bid bond issued by an insurance or security company authorized to do business in the State of New Jersey, a certified or cashier's check drawn to the order of the Treasurer, State of New Jersey, or an irrevocable letter of credit drawn naming the Treasurer, State of New Jersey as beneficiary issued by a federally insured financial institution.
 2. The State will hold all bid security during the evaluation process. As soon as is practicable after the completion of the evaluation, the State will:
 - a. Issue an award notice for those offers accepted by the State;
 - b. Return all bond securities to those who have not been issued an award notice.

All bid security from contractors who have been issued an award notice shall be held until the successful execution of all required contractual documents and bonds (performance bond, insurance, etc. If the contractor fails to execute the required contractual documents and bonds within thirty (30) calendar days after receipt of award notice, the contractor may be found in default and the contract terminated by the State. In case of default, the State reserves all rights inclusive of, but not limited to, the right to purchase material and/or to complete the required work in accordance with the New Jersey Administrative Code and to recover any actual excess costs from the contractor. Collection against the bid security shall be one of the measures available toward the recovery of any excess costs.

- b. Performance Security - If performance security is required, the successful bidder shall furnish performance security in such amount on any award of a term contractor line item purchase, see N.J.A.C. 17: 12- 2.5. Acceptable forms of performance security are as follows:
 1. The contractor shall be required to furnish an irrevocable security in the amount listed in the Request for Proposal payable to the Treasurer, State of New Jersey, binding the contractor to provide faithful performance of the contract.
 2. The performance security shall be in the form of a properly executed individual or annual performance bond issued by an insurance or security company authorized to do business in the State of New Jersey, a certified or cashier's check drawn to the order of the Treasurer, State of New Jersey, or an irrevocable letter of credit drawn naming the Treasurer, State of New Jersey as beneficiary issued by a federally insured financial institution.

The Performance Security must be submitted to the State within 30 days of the effective date of the contract award and cover the period of the contract and any extensions thereof. Failure to submit performance security may result in cancellation of contract for cause pursuant to provision 3.5b,1, and nonpayment for work performed.

3.4 VENDOR RIGHT TO PROTEST - INTENT TO AWARD - Except in cases of emergency, bidders have the right to protest the Director's proposed award of the contract as announced in the Notice of Intent to Award, see N.J.A.C. 17:12-3.3. Unless otherwise stated, a bidder's protest must be submitted to the Director within 10 working days after receipt of written notification that his bid has not been accepted or that an award of contract has been made. In the public interest, the Director may shorten this protest period, but shall provide at least 48 hours for bidders to respond to a proposed award. In cases of emergency, stated in the record, the Director may waive the appeal period. See N.J.A.C. 17: 12- 3 et seq.

3.5 TERMINATION OF CONTRACT

- a. Change of Circumstances

Where circumstances and/or the needs of the State significantly change, or the contract is otherwise deemed no longer to be in the public interest, the Director may terminate a contract entered into as a result of this Request for Proposal, upon no less than 30 days notice to the contractor with an opportunity to respond.

In the event of such termination, the contractor shall furnish to the using agency, free of charge, such reports as may be required,

- b. For cause:
 1. Where a contractor fails to perform or comply with a contract, and/or fails to comply with the complaints procedure in N.J.A.C. 17: 12-4.2 et seq., the Director may terminate the contract upon 10 days notice to the contractor with an opportunity to respond.

2. Where a contractor continues to perform a contract poorly as demonstrated by formal complaints, late delivery, poor performance of service, short-shipping etc., so that the Director is repeatedly required to use the complaints procedure in N.J.A.C. 17:12-4.2 et seq. the Director may terminate the contract upon 10 days notice to the contractor with an opportunity to respond.
 - c. In cases of emergency the Director may shorten the time periods of notification and may dispense with an opportunity to respond.
 - d. In the event of termination under this section, the contractor will be compensated for work performed in accordance with the contract, up to the date of termination. Such compensation may be subject to adjustments.
- 3.6 COMPLAINTS** - Where a bidder has a history of performance problems as demonstrated by formal complaints and/or contract cancellations for cause pursuant to 3.5b a bidder may be bypassed for this award. See N.J.A.C. 17:12-2.8.
- 3.7 EXTENSION OF CONTRACT QUASI-STATE AGENCIES** - It is understood and agreed that in addition to State Agencies, Quasi-State Agencies may also participate in this contract. Quasi-State Agencies are defined in N.J.S.A. 52:27B-56.1 as any agency, commission, board, authority or other such governmental entity which is established and is allocated to a State department or any bi-state governmental entity of which the State of New Jersey is a member.
- 3.8 EXTENSION OF CONTRACTS TO POLITICAL SUBDIVISIONS, VOLUNTEER FIRE DEPARTMENTS AND FIRST AID SQUADS, AND INDEPENDENT INSTITUTIONS OF HIGHER EDUCATION - N.J.S.A. 52:25-16.1** permits counties, municipalities and school districts to participate in any term contract(s), that may be established as a result of this proposal.
- N.J.S.A. 52:25-16.2 permits volunteer fire departments, volunteer first aid squads and rescue squads to participate in any term contract(s) that may be established as a result of this proposal.
- N.J.S.A. 52:25-16.5 permits independent institutions of higher education to participate in any term contract(s) that may be established as a result of this proposal, provided that each purchase by the Independent Institution of higher education shall have a minimum cost of \$500.
- In order for the State contract to be extended to counties, municipalities, school districts, volunteer fire departments, first aid squads and independent institutions of higher education the bidder must agree to the extension and so state in his bid. proposal. The extension to counties municipalities, school districts, volunteer fire departments, first aid squads and Independent Institutions of higher education must 'be under the same terms and conditions, including price, applicable to the State.
- 3.9 EXTENSIONS OF CONTRACTS TO COUNTY COLLEGES - N.J.S.A. 18A:64A - 25. 9** permits any college to participate in any term contract(s) that may be established as a result of this proposal.
- 3.10 EXTENSIONS OF CONTRACTS TO STATE COLLEGES - N.J.S.A. 18A:64- 60** permits any State College to participate in any term contract(s) that may be established as a result of this proposal.
- 3.11 SUBCONTRACTING OR ASSIGNMENT** - The contract may not be subcontracted or assigned by the contractor, in whole or in part, without the prior written consent of the Director of the Division of Purchase and Property. Such consent, if granted, shall not relieve the contractor of any of his responsibilities under the contract.
- In the event the bidder proposes to subcontract for the services to be performed under .the terms of the contract award, he shall state so in his bid and attach for approval a list of said subcontractors and an Itemization of the products and/or services to be supplied by them.
- Nothing contained in the specifications shall be construed as creating any contractual relationship between any subcontractor and the State.
- 3.12 MERGERS, ACQUISITIONS** - If, subsequent to the award of any contract resulting from this Request for Proposal, the contractor shall merge with or be acquired by another firm, the following documents must be submitted to the Director, Division of Purchase & Property.
- a. Corporate resolutions prepared by the awarded contractor and new entity ratifying acceptance of the original contract, terms, conditions and prices.
 - b. State of New Jersey Bidders Application reflecting all updated information including ownership disclosure, pursuant to provision 1.5.

c. Vendor Federal Employer Identification Number.

The documents must be submitted within thirty (30) days of completion of the merger or acquisition. Failure to do so may result in termination of contract pursuant to provision 3.5b.

If subsequent to the award of any contract resulting from this Request for Proposal, the contractor's partnership or corporation shall dissolve, the Director, Division of Purchase & Property must be so notified. All responsible parties of the dissolved partnership or corporation must submit to the Director in writing, the names of the parties proposed to perform the contract, and the names of the parties to whom payment should be made. No payment should be made until all parties to the dissolved partnership or corporation submit the required documents to the Director.

3.13 PERFORMANCE GUARANTEE OF BIDDER - The bidder hereby certifies that:

- a. The equipment offered is standard new equipment, and is the manufacturer's latest model in production, with parts regularly used for the type of equipment offered; that such parts are all in production and not likely to be discontinued; and that no attachment or part has been substituted or applied contrary to manufacturer's recommendations and standard practice.
- b. All equipment supplied to the State and operated by electrical current is UL listed where applicable.
- c. All new machines are to be guaranteed as fully operational for the period stated in the Request For Proposal from time of written acceptance by the State. The bidder will render prompt service without charge, regardless of geographic location.
- d. Sufficient quantities of parts necessary for proper service to equipment will be maintained at distribution points and service headquarters.
- e. Trained mechanics are regularly employed to make necessary repairs to equipment in the territory from which the service request might emanate within a 48-hour period or within the time accepted as industry practice.
- f. During the warranty period the contractor shall replace immediately any material which is rejected for failure to meet the requirements of the contract.
- g. All services rendered to the State shall be performed in strict and full accordance with the specifications stated in the contract. The contract shall not be considered complete until final approval by the State's using agency is rendered.

3.14 DELIVERY GUARANTEES - Deliveries shall be made at such time and in such quantities as ordered in strict accordance with conditions contained in the Request for Proposal.

The contractor shall be responsible for the delivery of material in first class condition to the State's using agency or the purchaser under this contract and in accordance with good commercial practice.

Items delivered must be strictly in accordance with the Request for Proposal.

In the event delivery of goods or services is not made within the number of days stipulated or under the schedule defined in the Request for Proposal, the using agency may be authorized to obtain the material or service from any available source, the difference in price, if any, to be paid by the contractor failing to meet his commitments.

3.15 DIRECTOR'S RIGHT OF FINAL BID ACCEPTANCE - The Director reserves the right to reject any or all bids, or to award in whole or in part if deemed to be in the best interest of the State to do so. The Director shall have authority to award orders or contracts to the vendor or vendors best meeting all specifications and conditions in accordance with N.J.S.A. 52:34-12. Tie bids will be awarded by the Director in accordance with N.J.A.C.17:12-2.1D.

3.16 BID ACCEPTANCES AND REJECTIONS - The provisions of N.J.A.C. 17:12-2.9, relating to the Director's right, to waive minor elements of non-compliance with bid specifications and N.J.A.C. 17: 12- 2.2 which defines causes for automatic bid rejection, apply to all proposals and bids.

3.17 STATE'S RIGHT TO INSPECT BIDDER'S FACILITIES - The State reserves the right to inspect the bidder's establishment before making an award, for the purposes of ascertaining whether the bidder has the necessary facilities for performing the contract.

The State may also consult with clients of the bidder during the evaluation of bids. Such consultation is intended to assist the State in making a contract award which is most advantageous to the State.

- 3.18 STATE'S RIGHT TO REQUEST FURTHER INFORMATION** - The Director reserves the right to request all information which may assist him or her in making a contract award, including factors necessary to evaluate the bidder's financial capabilities to perform the contract. Further, the Director reserves the right to request a bidder to explain, in detail, how the bid price was determined.
- 3.19 MAINTENANCE OF RECORDS** - The contractor shall maintain records for products and/or services delivered against the contract for a period of three (3) years from the date of final payment. Such records shall be made available to the State upon request for purposes of conducting an audit or for ascertaining information regarding dollar volume or number of transactions.

4. TERMS RELATING TO PRICE QUOTATION

- 4.1 PRICE FLUCTUATION DURING CONTRACT** - Unless otherwise noted by the State, all prices quoted shall be firm through issuance of contract or purchase order and shall not be subject to increase during the period of the contract.

In the event of a manufacturer's or contractor's price decrease during the contract period, the State shall receive the full benefit of such price reduction on any undelivered purchase order and on any subsequent order placed during the contract period. The Director of Purchase and Property must be notified, in writing, of any price reduction within five (5) days of the effective date.

Failure to report price reductions will result in cancellation of contract for cause, pursuant to provision 3.5b.1.

- 4.2 DELIVERY COSTS** - Unless otherwise noted in the Request for Proposal, all prices for items in bid proposals are to be submitted F.O.B. Destination. Proposals submitted other than F.O.B. Destination may not be considered. Regardless of the method of quoting shipments, the contractor shall assume all costs, liability and responsibility for the delivery of merchandise in good condition to the State's using agency or designated purchaser.

F.O.B. Destination does not cover "spotting" but does include delivery on the receiving platform of the ordering agency at any destination in the State of New Jersey unless otherwise specified. No additional charges will be allowed for any additional transportation costs resulting from partial shipments made at contractor's convenience when a single shipment is ordered. The weights and measures of the State's using agency receiving the shipment shall govern.

- 4.3 C.O.D. TERMS** - C.O.D. terms are not acceptable as part of a bid proposal and will be cause for rejection of a bid.

- 4.4 TAX CHARGES** - The State of New Jersey is exempt from State sales or use taxes and Federal excise taxes. Therefore, price quotations must not include such taxes. The State's Federal Excise Tax Exemption number is 22-75-0050K.

- 4.5 PAYMENT TO VENDORS** - Payment for goods and/or services purchased by the State will only be made against State Payment Vouchers. The State bill form in duplicate together with the original Bill of Lading, express receipt and other related papers must be sent to the consignee on the date of each delivery. Responsibility for payment rests with the using agency which will ascertain that the contractor has performed in a proper and satisfactory manner in accordance with the terms and conditions of the award. Payment will not be made until the using agency has approved payment.

For every contract the term of which spans more than one fiscal year, the State's obligation to make payment beyond the current fiscal year is contingent upon legislative appropriation and availability of funds.

The State of New Jersey now offers State contractors the opportunity to be paid through the MASTERCARD procurement card (p-card). A contractor's acceptance and a State Agency's use of the p-card, however, is optional. P-card transactions do not require the submission of either a contractor invoice or a State payment voucher. Purchasing transactions utilizing the p-card will usually result in payment to a contractor in three days. A Contractor should take note that there will be a transaction processing fee for each p-card transaction. To participate, a contractor must be capable of accepting the VISA card. For more information, call your bank or any merchant services company.

- 4.6 NEW JERSEY PROMPT PAYMENT ACT** - The New Jersey Prompt Payment Act N.J.S.A. 52:32-32 et seq. requires state agencies to pay for goods and services within sixty (60) days of the agency's receipt of a properly executed State Payment Voucher or within sixty (60) days of receipt and acceptance of goods and services, whichever is later. Properly executed performance security, when required, must be received by the state prior to processing any payments for goods and services accepted by state agencies. Interest will be paid on delinquent accounts at a rate established by the State Treasurer. Interest will not be paid until it exceeds \$5.00 per properly executed invoice.

Cash discounts and other payment terms included as part of the original agreement are not affected by the Prompt Payment Act.

4.7 RECIPROCITY - In accordance with N.J.S.A. 52:32-1.4 and N.J.A.C. 17: 12- 2. 13, the State of New Jersey will invoke reciprocal action against an out-of-State bidder whose state or locality maintains a preference practice for their bidders.

5. CASH DISCOUNTS - Bidders are encouraged to offer cash discounts based on expedited payment by the State. The State will make efforts to take advantage of discounts, but discounts will not be considered in determining the lowest bid.

- a. Discount periods shall be calculated starting from the next business day after the recipient has accepted the goods or services received a properly signed and executed State Payment Voucher form and, when required, a properly executed performance security, whichever is latest.
- b. The date on the check issued by the State in payment of that Voucher shall be deemed the date of the State's response to that Voucher.

6. STANDARDS PROHIBITING CONFLICTS OF INTEREST - The following prohibitions on vendor activities shall apply to all contracts or purchase agreements made with the State of New Jersey, pursuant to Executive Order No. 189 (1988).

- a. No vendor shall pay, offer to pay, or agree to pay, either directly or indirectly, any fee, commission, compensation, gift, gratuity, or other thing of value of any kind to any State officer or employee or special State officer or employee, as defined by N.J.S.A. 52:13D-13b and e., in the Department of the Treasury or any other agency with which such vendor transacts or offers or proposes to transact business, or to any member of the immediate family, as defined by N.J.S.A. 52:13D-13i., of any such officer or employee, or partnership, firm or corporation with which they are employed or associated, or in which such officer or employee has an interest within the meaning of N.J.S.A. 52: 13D-13g.
- b. The solicitation of any fee, commission, compensation, gift, gratuity or other thing of value by any State officer or employee or special State officer or employee from any State vendor shall be reported in writing forthwith by the vendor to the Attorney General and the Executive Commission on Ethical Standards.
- c. No vendor may, directly or indirectly, undertake any private business, commercial or entrepreneurial relationship with, whether or not pursuant to employment, contract or other agreement, express or implied, or sell any interest in such vendor to, any State officer or employee or special State officer or employee or special State officer or employee having any duties or responsibilities in connection with the purchase, acquisition or sale of any property or services by or to any State agency or any instrumentality thereof, or with any person, firm or entity with which he is employed or associated or in which he has an interest within the meaning of N.J.S.A. 52: 130-13g. Any relationships subject to this provision shall be reported in writing forthwith to the Executive Commission on Ethical Standards, which may grant a waiver of this restriction upon application of the State officer or employee or special State officer or employee upon a finding that the present or proposed relationship does not present the potential, actuality or appearance of a conflict of interest.
- d. No vendor shall influence, or attempt to influence or cause to be influenced, any State officer or employee or special State officer or employee in his official capacity in any manner which might tend to impair the objectivity or independence of judgment of said officer or employee.
- e. No vendor shall cause or influence, or attempt to cause or influence, any State officer or employee or special State officer or employee to use, or attempt to use, his official position to secure unwarranted privileges or advantages for the vendor or any other person.
- f. The provisions cited above in paragraph 6a through 6e shall not be construed to prohibit a State officer or employee or Special State officer or employee from receiving gifts from or contracting with vendors under the same terms and conditions as are offered or made available to members of the general public subject to any guidelines the Executive Commission on Ethical Standards may promulgate under paragraph 6c.